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## PRIVILEGE CEREMONIALS IN TIKOPIA

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PRIVILEGE CEREMONIALS are an important element in the social organization of many primitive communities. By privilege ceremonial is meant a set of activities carried out in a formal way, the performance being conceded as a social advantage enjoyed as of right by a particular person or group. In conventional anthropological theory, the recognition of the ceremonial performance as a privilege tends to serve as one of the demarcation factors in the group structure of the society: the group which carries out the activity or to which the privileged person belongs is thereby marked out from others, and its exclusiveness is enhanced. This gross functional hypothesis can be refined.

The ceremonial which is the subject of privilege is viewed differently by members of the group concerned and by members of other groups. For the former it is something of their own, and therefore tends to be given a maximum value in their estimation of the weighting of social events. It is in effect an extension of their personality, and is defended and prized as such. To the members of other groups, the privilege ceremonial can be something which challenges their position, debars them from participation in a certain sector of social affairs. Against the attitude of enhancement by the performing group may be set then an attitude of depreciation by the non-performing groups. Some privilege ceremonials consist in the performance of a set of symbolic acts on behalf of the society as a whole. But others involve simply the performance of acts with referent only in the group immediately concerned. To a large extent, such ceremonies are socially dispensable. What then is the sociological basis for their continued existence, for the general social concession that they are affairs of privilege?

The explanation lies, I think, in the value of ceremonial or ritual parallelism in providing social incentives. In a society of multiple kin unit structure, for instance, of clan or lineage type, privilege ceremonials are usually well distributed through the

groups. If group X has ceremonial performance *a*, then it will be found that group Y has ceremonial *b* and probably group Z has ceremonial *c*. These ceremonials may not necessarily have any connection with one another; they may not even be ceremonials of the same order. This in itself is of technical interest. The fact that the ceremonies are disparate and are unconnected can be of social advantage. If they were in hierarchical relation, as may be often the case, then the groups concerned have the superiority-inferiority relation between them stressed. If they are unconnected, however, then each group is at liberty to exalt its one performance, to boast about its special validity or character, without check. A group of low status in ordinary affairs can thus lay claim to special position, unique position, in just one thing, not to be matched by the performance of other groups. In this way, privilege ceremonials can provide a partial escape from submission to the general structural alignment in the society, and can mitigate the strains of a hierarchical order of grouping.

The following account gives some data about a few privilege ceremonials of some kinship units of non-exogamous lineage (ramage) type in Tikopia. It elaborates the hypothesis given above, and also takes up some problems of the organization of such activities.

The account is based mainly on hearsay evidence. Even in traditional times these ceremonies were infrequent. Now that some of the groups primarily concerned have adopted Christianity, several of the ceremonies had been abandoned even before I was in Tikopia in 1928–29. Partly for this reason, and partly because of the mutely symbolic, only half-explained, character of some of the acts in the ceremonies, the impression they conveyed to me was of archaic performances. This is backed up to some extent by the mythological associations of the ceremonies, which stress their antiquity, though the time factor emphasized here is of sociological rather than historical importance.

The essential general features of such ceremonies in Tikopia are: the performance of a formal social act of a periodic kind, concerned with the maturity of an individual or a stage in the progress of an artefact; the accumulation and distribution of a mass of food; and the signalization of individual or group privilege by the enaction of some special measure such as a dance, a song or some other semi-recreational, semi-ritual activity. It is socially convenient for such practices to have a collective name. In Tikopia the name may refer either to some object prominently used in the ceremony, or to a term of some honorific value. Normally, it also specifies the kinship unit concerned.

There are many privilege ceremonials in Tikopia, varying in their incidence and in the importance credited to them. Some have already been described in *The Work of the Gods*.[1]

[1] Raymond Firth, *The Work of the Gods in Tikopia*, Vols. I, II. London School of Economics Monographs on Social Anthropology, Nos. 1 and 2. London 1940.

These are of a seasonal order, and are integrated into a closely knit sequence of operations in which all the major kin units of the community have their functions to perform. Other privilege ceremonials are also seasonal, but fall outside the main ritual cycle. Such are the ceremonials performed by sa Taumako in connection with taro, by sa Fangarere in connection with breadfruit, and by sa Fusi in connection with sago.[2]

Apart from these, there are certain ceremonies performed much more rarely, and related to social progression rather than to the harvest of crops. Three important ceremonials associated with specific kin groups are the *Kura* of sa Marinoa, the *Manongi* of sa Korokoro, and the *Pora* of sa Taumako. I shall describe these here.

These names throw little light on the nature of the ceremonials. The word *kura* has several homophones. One means simply " over there "; another means a funeral gift from a grandparent to a grandchild who is an important participant in the ceremonies. Yet another signifies a valued object, and it is perhaps with this meaning that it refers to the Marinoa ceremony. The term has no reference to the colour red, which is an association of it elsewhere in Polynesia.[3]

The term *manongi* ordinarily refers to the quality of scentedness, sweet aroma as distinct from the pungency of *kona* objects. It is most commonly applied to leaves which when bruised emit scent. By extension, it also refers to the shrubs bearing such leaves, to leaf and flower decorations worn in the dance (usually, but by no means always, sweet smelling). More metaphorically, it means a sweetheart or lover, a common association of Tikopia love-making being dancing and the wearing of flower decorations. In general, then, the term *manongi* can mean a scented object, one of some special interest. *Pora* seems to be simply a descriptive term, without any particular value significance; it refers to the large taro pudding characteristic of the ceremony.

The interest of these ceremonials is reflected in personal names. The Kura of Marinoa is referred to in the name " Kuramua " given to one of the sons of the elder of Marinoa.

I give a brief account of the *pora* first, since I saw one instance of this, in a minor version. The *pora* on full scale is the first of a series of feasts held by the Ariki Taumako after his accession. Every chief in Tikopia tries over the years to hold a set of such feasts, but the outlay in food is great, and few appear to complete the series. Only that of the Ariki Taumako is termed *pora*. The basic food for the feast is taro, which is specially associated with the Taumako chief since it is the material representation of his principal god.[4] Hence no other chief performs a rite of that name, or concentrates the food supply for his feast primarily on taro.

[2] Sago ceremonies have been described in an article, " Economics and Ritual in Sago Extraction in Tikopia," *Mankind*, Vol. IV, 1950, pp. 131-142 (with plates).

[3] Cf. H. W. Williams, *Maori Dictionary, s.v. kura:.*

[4] Raymond Firth, " Totemism in Polynesia," *Oceania*, Vol. I, 1930-31.

The chief of Taumako gets his cultivations and those of his clan well planted up in taro, and then if the crop is good, declares that the *pora* will be made. Members of all the clans assemble, each headed by their own chief. On the first day of the ceremonies the taro is dug (*tokonaki*) by communal labour. On the second day the *pora* is made. This is an enormous pudding. No wooden bowl is big enough to hold it. Instead, a large mat is plaited from coconut leaf, big fronds (*foi rau niu rau roa*) being used. This mat is lined with the large leaves of Colocasia and other plants ordinarily used for holding food.[5] The taro is scraped, grated and cooked in an oven, then mashed up on the matting, into a pudding consistency. Coconut cream is mixed with the taro mash first, and then oil, prepared on the spot from coconut cream which has been treated with hot stones. A great amount of oil is used, made from specially selected coconuts. Wooden bowls containing the oil stand round the mat, and some people run to and fro with coconut cups splashing the oil on the pudding while others mash it further with pestles. As they work they get splashed liberally with the oil too. In a description of the *pora* this plenitude of oil is stressed, since it is an index of the richness of the feast. Taro is the bread, oil the butter, so to say, of the occasion. Informants took obvious pleasure in telling how when the *pora* is carried to the clan temple the oil in the pudding is so abundant that it runs down on the ground. After the usual rites of offering to the gods and ancestors, the pudding is shared out among the participants, with special shares for the chiefs and other men of rank.

The *pora* I saw was made in connection with the rebuilding of the oven-house of Resiake, the clan temple of Taumako.[6] This was not a very elaborate affair, the people assembled being members of Taumako clan only. The pudding then made as indicated on coconut leaf matting instead of in the ordinary wooden bowls, was known technically as *te taumafa*—the portion—to distinguish it from the full-scale one. Moreover, it was eaten in the oven-house, not in the larger temple of the clan.

The *Manongi* of sa Korokoro is known alternatively as *Te Ruku*, a name applied also to the Manongi of Te Akauroro (see later). This ceremony is marked by the exercise of ritual licence in the collection of food which is cooked for the feast. The crowd of participants with those from Korokoro group as their nucleus, go off to the orchards. One of their number is a man carrying a spear. He points silently to a bunch of bananas, a coconut or some yams, and the crowd go and take what he indicates. They make a raid through a wide range of orchards and gardens in this fashion, taking a little food only from each. This is the custom known as *aru*.[7] The food is taken back to the house of Korokoro, and set by the side of a fireplace, which is guarded by two women, each with a circlet of a variety of Cordyline leaf (*ti mea*) round her neck. Their role will be explained later. The crowd then goes

[5] See *We, the Tikopia*, 1936, pp. 437, 550; *Primitive Polynesian Economy*, 1940, pp. 222-230.

[6] See *Primitive Polynesian Economy*, Plates V, VI.

[7] *Primitive Polynesian Economy*, pp. 260-261.

off to net fish, doing this in the ritual manner known as *Sa Runga*.[8] Accompanied still by the man with the spear, the people descend to the shore at Siku on the western side of the island, and work along the reef for some distance, netting as they go. As a fish is got, the man with a spear sticks it on his instrument, gives a whoop of acknowledgement, and then hands it over to be strung in the usual way. At the far end of the beach, at a place known as Fakafuevaka, the people come out of the water, and begin to walk down the beach. The men carefully adjust their waist-cloths, for they are going to race in competition—" *Te furi ka ta.*" After a stony part of the beach has been passed the man with the spear calls out suddenly " Hey ! the god has arrived." (*Ie ! te atua ku oko.*) On this, the men break into a run, without looking behind, while the man with the spear follows slowly. One man after another drops behind. The first-comer to reach Korokoro goes to a row of fire-plough sticks (*sika afi*), previously laid in readiness, seizes a pair and thrusts them in under the eaves on the *mata paito* side of the house. The sticks are seized and held firm from within the house, and the man, bending vigorously to his work, proceeds to kindle fire. Meanwhile other racers have arrived also, and each does likewise. The first man to get his fire going gives a whoop of triumph. He has the victory (*maro*). The others stop their efforts. A fire is set going both in *mata paito*, near where the chief of the Tafua clan is sitting, and also outside in the oven guarded by the pair of women. On the latter, the vegetable food and fish that have been collected are set to cook.

While the food cooks, the people begin to dance. As they dance, each man has a branch of leafy twigs in his hands. They circle round the fire tended by the two women, and make motions with the leafy branches as if fanning the flames. As they dance, they sing, as is usual at Tikopia dances. But the songs are special to the ceremony, not to be sung elsewhere. They are extremely simple, as are many of the Tikopia esoteric songs. One is :

*Tafito :* *Aku kái, kai kerekére*
*Aku kái se vorusía*

*Kupu :* *Taku sikosikó i Rangi*
*Fakaeva tú i te Rongi.*

*Translation :*

My food is earthy food
My food has not been peeled

My string figures in the Heavens
Rise and stand in the Heavens.

The first stanza refers to the manner in which the food cooking in the oven is eaten. As the first tubers, bananas etc., are ready, a cook throws them to the two guardian women, sitting silently by the fire ; they peel the food and put it in a

[8] Practised especially in connection with the re-carpeting of the temple of Somosomo. See my *Work of the Gods*, Vol. II, pp. 317-319.

basket, which is then presented to the chief. But the remainder of the food, as it is cooked, is simply plucked out of the fire and handed to the dancers. With the earthy skin on, it is bitten by them—and if one end happens not to be cooked, it is thrust back into the fire. This process is repeated until the dance and food are finished. Hence the reference to the food not having been peeled. Literally, ***varusia***, in its poetic form of *vorusia*, means not scraped, since a shell or knife is ordinarily used to remove the skin by scraping. This departure from custom in handing out food with the skin still on emphasizes the esoteric character of the ceremony. The dance is very similar to a more elaborate one performed twice a year at Uta, as part of the seasonal ritual cycle.[9]

The second stanza has a more directly religious reference. String figures, of which the Tikopia know a large number of variants, are particularly associated with the kin unit of Korokoro. It is indeed taboo for people of Korokoro to play string figure games in the temple of that name. It is stated that it has been observed that someone doing so was struck by blindness—a typical sanctional myth.

We are now in a position to explain what to the Tikopia is the essential mainspring of this Korokoro ceremony. It is one of the ways in which the group pays respect to some of its principal deities. In the list of deities worshipped by the elder of Korokoro appears the name Ruaeva. This is one of the titles of the pair of deities known as Pu ma in Kafika, and individually as Tafaki and Karisi. They are the premier gods of Tikopia. The spear used in the collection of food is dedicated to them. It used to hang in pre-Christian days ordinarily outside the *mata paito* of Korokoro temple. There is also a connection with Taumako clan, since the central post of the temple " belongs " to that clan. The spear—which still was in existence when I was in Tikopia—was carved by Pae Avakofe, one of the senior men of Taumako. The relation of the ceremony to Pu ma comes out also in regard to string figures. There is no specific tale of the origins of this culture item, but the figures are attributed in a general way as having their basis in Pu ma. Hence the reference to the Heavens in the song, and the reason given for the taboo on playing them in Korokoro temple. They are an attribute of the gods. A second song of the ***Ruku*** takes up the same theme, of Pu ma:

*Unufe unufe ngaoro*
*Ifoifo i te Siku e!*
*Akeake i Fakafuevoko.*

Caterpillar, caterpillar, crawl.
Descend at the Siku, O!
Ascend at Fakafuevaka.

The reference is to the two localities at either end of the fishing beach. But the caterpillar, harmless as it seems, like other creatures in Tikopia, can be a medium of gods. In fact, it is regarded as representing Pu ma on occasions, being used by

[9] *Work of the Gods*, Vol. I, pp. 272, 276.

them in order to take material form. The reference becomes rather more involved when one considers another song of equally simple type about the caterpillar :

*Unufe unufe*
*Ngaororo isea ?*
*Ngaororo i te rau taro.*

Caterpillar, caterpillar
Whence are you crawling ?
Crawling from the taro leaf.

This is very natural behaviour. But this song is one chanted over a string figure shape known as *unufe*—caterpillar, and reinforces the association with Pu ma.

Association with other deities is given by the identification of the two women at the fire with Pufine ma, twin female deities of great importance in Korokoro and some other groups. It is relevant also to note that the crowd of people going out to collect food is spoken of as *te kauatua*—the spirit crowd—a term which reinforces the esoteric quality of the ceremony.

The Manongi of Te Akauroro, a rite performed in connection with one of the sacred canoes of Taumako, is part of the work of the gods[10] but has a close resemblance to the Manongi of sa Korokoro. The reason, in Tikopia terms, is that the former has separated off (*vae*) from the latter ; the same name *Te Ruku* is applied to it. In the structural arrangements of the religious system of deities, the canoe is dedicated primarily to Pu ma in their Korokoro title. Hence a basket of food must be sent to the elder of Korokoro on all ceremonial occasions in which the vessel is concerned ; the vessel " has its base in him." The procedure is much the same as in the Manongi sa Korokoro. The canoe is taken out of its shed, and people go and collect food, as an *aru*. They go " with hands only," without knife or other implement. They also go fishing, but no net must be used—the fish must be struck with sticks only. The sacred spear—the " body " of Pu ma—is taken down and pointed at the fish as the tide ebbs—whereupon they turn and come back to the reef, it is alleged. When the vegetable food and fish are brought back, the same competitive race and kindling of fire takes place as described earlier. The dancing and chanting follows the same pattern. A kava ritual also takes place to make the offerings to the gods.

The *Kura* of sa Marinoa is of the same general type, with *aru* collection of crops, special fishing, and chanting and dance. But the ceremony has different details, and a specific function not shared by the others. This is the creation of the *fafine ariki* of Marinoa. *Fafine ariki* means literally " chiefly female." In Tikopia, succession to the normal office of chief is strictly patrilineal ; no woman is ever recorded as having been chief of a clan, and the possibility would be scouted by the people. There is no provision for her to perform the body of ritual required of the holder of such office. But in two clans, Kafika and Tafua, a special status

[10] *Work of the Gods*, Vol. I, p. 83.

existed for one woman in each generation, and she had powers which though limited resembled those of a chief proper. She acquires her title ordinarily as being the eldest daughter, or sister of the chief, who is of course the senior man of the kin unit giving its name to the clan. Marinoa is a lineage of Kafika clan, and its head is one of the senior officials of the clan, supporting the chief in many ritual performances. Here also there is by custom a " chiefly female." The eldest daughter of the elder, when she reaches maturity, becomes the *fafine ariki* of Marinoa. A feast is made, the girl has a circlet of Cordyline (*rau ti*) placed ritually round her neck by her father, and girls and boys put on flower ornaments (*fai manongi*). The ceremonial of the *Kura* then takes place.

The *fafine ariki* of Marinoa, I was told, does not marry, neither does she take lovers. " She lives properly." And when she gets older, it is the custom for her to swim out to sea and commit suicide. Why ? " Her mind is like this : shall she live thus always ? She will stop and grow old, and there will be no son to look after her. So she commits suicide." The father's sister of one of my main informants took her life in this fashion—afraid of men, as another informant put it. This is the customary method employed by Tikopia women in committing suicide. But as usual with Tikopia explanations, there is an esoteric as well as an exoteric reason given.

" This is the basis of it. When she goes to the world of spirits and dwells there, she will live among the *kau kura*, the assembly who have made the *kura*, she will live as a chief among the spirits. But if she marries, then when she tries to take her seat among the assembly as a chieftainess, she is spurned to one side." The assembly who have made the *kura* is conceived as a crowd of women who are female chiefs as the result of their ceremonial elevation, and who perpetuate the ceremonies and dignities of the earthly life. Chastity enables a Marinoa woman to keep her place there. The *kura*, it is said, continues to be made in the spirit world, and only people who have participated in it on earth—folk of Marinoa and the children of women from that group—attend it. The prohibition of marriage does not extend to the *fafine ariki* of Kafika and Tafua chiefly groups ; from early times, according to tradition, they have married, and a number of the other groups trace descent from them. But Marinoa is a commoner group, not a member of the chiefly houses, and it may be that the prohibition of marriage is a mark of the extra qualification which has to be held for the status of a " chiefly female " to be acquired. At the same time, the rule is not absolute ; one of my informants pointed out to me that one *fafine ariki* of Marinoa, Angarua by name, married a former chief of Tafua.

It is the belief in its religious associations that gives the *Kura* its social importance. In the *Kura* ceremony, the daughter of the elder has more than mortal dignity. She sits on the mat of Nau Taufiti, and is thus the representative of the goddess. The dance itself is held to have originated with the god Rata and his consort.

Rata, who of course is known in mythic cycles from various other Polynesian areas, is localized by the Tikopia. His embodiment is believed to be in the form of a

conch shell in the house Tarafanga. In the night this shell crawls from one end of the house to the other to sleep, so that sometimes it is found at one end, some times at the other, irrespective of where it may be put. When conch shells are blown on important social occasions, as on the death of a chief, no one will go and take this shell as a trumpet. If he tried to blow it, his lips would be bitten through, so that on taking them away from the shell he would find them falling off into his hand. Even in the Christian households, such beliefs about the traditional gods are still held. This is only one of the tales about Rata indicative of his status in the religious system. His consort, Nau Taufiti, who is one of the deities worshipped by Marinoa and other groups in Tikopia, is known by the title of Pufine Lasi (Great Grandam), and is much feared. This attribution is brought out very strongly in the songs chanted as accompaniment to the dance. The dance is of a very different type from that of the *Manongi* of Korokoro. It is marked by the fact that the participants are restricted in social relationship—only *tautau laui*, kinsfolk in " good relationship," may attend it. Mother's brothers and sister's children, men and their *nana taka*, unmarried mother's sisters, and women in similar relationship, and persons analogous in situation,[11] go. Men and women face each other in pairs, and the songs are exchanged between the two parties. " The men sit on one side and the women on the other. It is so that the men are Rata, and the women are Nau Taufiti."

Such a manner of representation of the male god by the group of men, and the female goddess by the group of women is a symbolic recognition of sex difference and sex potential. This theme is emphasized and brought home in very specific fashion by the songs that are chanted. They are mainly of the type known as *tauangutu*, taunting, challenging songs exchanged between men and women. In some cases they are quite definitely sexual in their imagery, in the type of song known as *feuku*.[12]

Such songs may well act as a sexual stimulant. " When night comes, who knows what happens," said one informant, discussing this point. Yet, as with the songs of sexual theme in the *Work of the Gods*, the circumstances in which they are sung are such that they are no mere bawdy recital. Their religious context gives them an aura of respectability.

This is brought out by some of the beliefs held in regard to them. It is said, for instance, as of the songs chanted in the *Work of the Gods* : " The *Kura* is sung to be exactly right " ; meaning that no error in the wording of the chant should be allowed to occur. A man who is taking part in the singing must keep his mind on the song. If he does not, and makes a slip, then, it is believed, the gods, who are listening, will be angry and make him lose his memory of the song altogether. Some of the words in the songs are not those used in ordinary speech ; they are supposed to be part of the speech of spirits. In commenting on this, my informant ejaculated

[11] See *We, the Tikopia*, p. 307, for explanation of this term in full.

[12] See *We, the Tikopia*, pp. 428, 520. Songs of this type in a heavily ritual setting, and regarded as sacrosanct, have been described in *Work of the Gods*, Vol. II, 1940, pp. 266-270, 281.

" What, is it a dance song of men ? It is a dance song of the gods ! " These songs, he added further, are *tauora, oratanga*. The welfare of the kin group is bound up in them. The *Kura* is no longer performed, but in former times if a man (presumably of the kin group) was ill, and the *Kura* was sung, he recovered. And when my informant had concluded reciting me the songs he said that if Christianity was not in the land, he would go to his home and die that night.

In effect the songs contained the life of his group. Only the fact that he was now a Christian protected him from the results of sacrilege.

I now give the text and translation of the *Kura* songs, as I received them from a member of the Marinoa group.

The *matai* (opening song) of the *Kura* is as follows :

I. *Tafito :* *Kume Kume-te-ua-to !*
*Kume mai ra*
*Kove ke ea Kume.*

*Safe :* *Oko mai ra ko Pu E !*

*Fai atu ke au E !*
*Fai atu ke tofuri.*

The second song is :

II. *Tafito :* *Take tu mou ke pou*
*Take tu moku ke pou*
*Na Rata kua mako i mua*
*E unu moi.*

*Safe :* *E unu moi E !*
*E unu moi ko te toa*
*E unu moi E !*

The succeeding songs are :

III. *Tafito :* *Ta te muri o te unga E !*
*Te maleva na ku penapena*
*Na kua laui.*

*Safe :* *Moi tungoro kua mofuri.*

IV. *Tafito :* *Tou foi pukamaro*
*Maro fu ke riro.*

*Safe :* *Kau se saere afangio*
*Fu e ole.*

V. *Tafito :* *E tuku ra*
*Ka ke rararara*
*Ka furifuri marie*
*Ka fokotutu.*

*Safe:* *E loa ne loa marara*
*Ka furifuri marie*
*Maseke au.*

VI. *Tafito:* *Pakalavalava e tiko*
*Taki rei ki te rokou.*

*Safe:* *E tiko i e tiko i te ara*
*Saeo e tangata.*

VII. *Tafito:* *Ko Rata, ko Rata memero.*

*Safe:* *Fenua, fenua katoa*
*Maunga, maunga katoa.*

VIII. *Tafito:* *Fetiri moi soa E!*
*O tafi toku laso*
*Ka nai rei te laso.*

*Safe:* *Te mimi o nau taka*
*Te laso e fuo uri.*

IX. *Tafito:* *Te fafine o te ara*
*Kua nofo*
*Saraua nga pure ke oti*
*Saraua tamariki ke oti.*

*Safe:* *O! Tolo i te repa.*

X. *Tafito:* *Toku tuo ngokou*
*Tukuo moi*
*Toku manava e oreore.*

*Safe:* *Toku se kalokalo*
*Na ke tokino*
*Kua tasese to.*

XI. *Tafito:* *Te kalokalo o te ara*
*Rakeia moi e fofine.*

*Safe:* *E au kove i te ara*
*E atangia moi tou tino.*

My informant, an expert of the *Kura*, said that this completed the series of songs.

I. The initial song of the *Kura* is addressed to a female deity, by name Kume. Owing perhaps to the conversion of the elder of Marinoa to Christianity, the name Kume does not commonly appear in lists of the gods of Tikopia. The man who gave

me the songs of the *Kura*, and who was of Marinoa group, said that she was invoked in the ancient kava ritual of the group, but not by the ritual elder latest in office. He described her as " one whom we obey ; our origin ; the man-cleansing deity." He said that she controlled the pool in Tarafare, the Heaven of sa Marinoa in the spirit-world. She is one of the deities responsible for cleansing the spirit of a dead person from mortal taint before it can proceed to take full part in the activities of the after-life. Nau Taufiti, a female deity mentioned earlier, lowers the dead man in his spirit semblance into the pool, where Kume resides at the bottom. She seizes the corpse—in its spirit form—devours it, and hands up the *ora*, the soul, to Nau Taufiti, saying, " Here ! Now it's yours ; I have finished with it."

Other people gave more specific identification. They identified Kume with Mafurere, one of the two sisters known as Pufine ma, mentioned earlier as involved in the ceremonies of Korokoro. And the other sister is Nau Taufiti, her proper name being Mafutoka, an alternative name being Rautoro. She is generally agreed to be the wife of Rata, though by some people it is said that he married Kume too. This introductory song is supposed to be chanted by Rata to try and induce Kume to incline to him. It must be emphasized that all the names of these deities are regarded by the Tikopia as of great ritual importance, not to be repeated lightly for fear of spiritual reprisals. Pufine ma in particular, are held to be conveyers of disease and evil. Hence the association of the *Kura* with them is significant of its social value.

The translation of the first song is :

Kume, Kume of the falling rain
Kume, come hither.
Where art thou, Kume ?

Come hither, Ancestor
Do something to enter, O
Do something to turn hither.

The ancestor in the second stanza is said to be Faka-sautimu, the adze-god of Marinoa, who is superior to Rata, and whom he is invoking to give his favour.

II. The second song is the reply of Nau Taufiti to her husband, asking him symbolically not to desert her for someone else. She refers to him as the house-post—the man is the post of the house, Rata is her post—and as a Casuarina tree—a tree in the Heaven Tarafare. The post and the tree are also both symbols of the male organ—" you know the spirit of these taunting songs," said my informant in comment.

Stand firm, you post
Stand for me, you post
It's Rata who has danced in front
Following me.

Following me O
Following me is the Casuarina tree
Following me O.

III. The third song carries on the sexual theme, with common Tikopia symbolism. The *unga* is the hermit crab, which has its soft rear protected by a univalve shell. Any simple object with a hole in it is a female symbol. *Ta* ordinarily means to strike, but in this context is used instead of *saki* (knock away) because it is more euphonious in the song. Knocking away the hermit crab's shell reveals the opening—or alternatively the soft part of the crab—just as removing the skirt of a woman reveals her genitalia. This is a song of Rata made to Nau Taufiti.

Knock away the rear of the hermit crab O
The maleness there has been prepared
And now is finely ready.

Sleep snoring now you have turned over (on your back).

IV. The fourth song is also a song of Rata, jeering in usual *tauangutu* style: the woman's organ is small like a pink Hernandia berry—let her hide it away:

Your *puka* berry
Conceal it and let it be hidden.

Don't walk with your legs apart
Conceal that which smells.

V. The fifth song continues in the same strain, accusing the woman of sexual desire and saying in effect: "When you feel you want to copulate, go and scorch it at the fire!"—and don't come to him.

Take it
And keep on scorching it
Turn it over nicely
And sit with legs apart.

It's long, long (the penis)
Turn it over nicely,
Your desiring.

VI. The next song is a reply by Nau Taufiti, likening Rata to a large spider. This animal is believed by the Tikopia to serve as an occasional manifestation of the god, and a myth embodies a reference to this. The song continues to jeer at the sex activities of men, using the word *tiko* (defecate) as a synonym for ejaculation, and referring to their grasping of women and defloration of them.

The spidery one excretes
Come along with your tree trunk.

Excreting O, excreting in the path (with any woman at all)
Grasped by men.

VII. This song is also by Nau Taufiti, but rather in complimentary vein. " Nau Taufiti praises the organ of her husband, and likens it to the crests of the mountains." She admires its size.

Rata, Rata is red.

Lands, all lands
Mountains, all mountains.

VIII. The following song is by Rata, and is a frank *feuku* inviting the woman to lift up his organ :

Hasten hither, wife
And lift up my penis
There is the penis.

The vagina of unmarried woman
The penis is dark.

IX. The next song is also one by Rata, this time mocking as it were at a loose woman, who has collected all the lovers available—not one remains, all have gone to her. Her buttocks are black (with rubbing the ground while in sex congress), and all shame her :

The woman of the path
Has stayed there
Has collected the married men to completion
Has collected the boys to completion.

O ! Buttocks like the oven-covering.

X. The next song is by Nau Taufiti, and uses a theme of a Tikopia folktale, the extraction of the vagina. In this case it is supposed to be replaced by cannibalistic labia—apparently a reference to a type of *vagina dentata* story. The vagina is taken out by Rata and his wife is afraid he will let it drop as he takes it away on his own organ.

The lips of my throat
Leave to me
My belly is hungry.

My Erythrina flower
That you have carried away
I am afraid you will let fall.

This song has many recondite expressions, said to be the speech of spirits.

XI. This song continues the theme of the last, but from the side of Rata. He adopts the metaphor of the Erythrina flower, which is bright red, to describe his penis, and asks his wife to adorn it. She herself is to go with glowing body in the

path. The song here follows no logical sequence, but embodies traditional belief about the goddess.

The Erythrina of the path
Ornamented by the woman.

You are coming along the path
Shining hither is your body.

XII. Another dance song, chanted by Nau Taufiti against her husband, was remembered by my informant while he was commenting on other songs. Its place in the series is uncertain. But it uses the same type of taunting epithets about the sex organ as in the last few songs, so may be considered here. Essentially, the goddess likens her husband's penis to a Cordyline root. This root is carrot-shaped and several feet long, and when cooked in the oven goes very dark in colour. Hence she plays up this colour theme.

*Tafito:* *Tou laso, tou laso o te ti vera*
*Tou laso fuo uri.*

*Safe:* *E uri mai, e uri mai*
*I ou mua*
*E uri pakarai, foi pule uri.*

Your penis, your penis of the hot Cordyline root
Your penis dark fruit.

It looks dark, it looks dark to me
At your front
It is extremely dark, a dark cowry shell.

The sexual element in most of these songs, and the attribution of them to the traditional deities of the Tikopia, inevitably led to their abandonment after the coming of Christianity to Faea, where most of the Marinoa people, including their ritual elder, live. But it was clear that by Christians as well as pagans they were regarded nostalgically, partly for their dramatic and recreational interest and partly because of the distinction they gave to the kinship group which had the responsibility for initiating them and the associated ceremonies.

Now let us pick up some of the general threads again.

The first point to consider is the variety of elements to be found in these few examples of privilege ceremonials. The people of Taumako make a giant taro pudding dripping with oil; those of Korokoro go raiding the cultivations headed by a man with a spear, have a race along the sands and make a fire by friction; those of Marinoa do some of this and also go in for sexual songs and celebrate the accession of a woman as pseudo-chief. There is pattern to be found as between the Korokoro and Marinoa ceremonies. All of them share some common features with ceremonies of other kinds, in the *Work of the Gods* and elsewhere. But some special

feature gives individuality and distinction to each. Like the features in the physiognomy of a person, such items in ceremonial help to create and maintain the individuality of a social group. Tikopia society is highly conscious of the differentiation of its major kin units of lineage type, and these ceremonies are thus to be regarded as pertinent structural features.

The second point is the distribution of these ceremonies. I have not attempted to describe them all. But it is noticeable that the groups which possess such ceremonials are some of the more important ones, in economic and ritual status. Korokoro and Marinoa are two of the highest ranking *paito pure*—houses of ritual elders—in the community. The distribution is by no means complete. By no means every lineage of the community has rights to such ceremonial. But a certain structural balance is provided in that some of the more important commoner groups do. In this way they are given status outside the complex ritual cycle, as independent entities, away from control by the chiefly groups.

A third point is that these ceremonies, though controlled by single groups without need of authorization from others, operate with some reference to community resources and standards. In each case it is the religious sanctions that are the final justification for the ceremonies. I say *are* because while Christianity has been adequate to cause the abandonment of these and other tokens of pagan religion among some of the groups concerned, it was clear when I was in Tikopia that the ancient gods were still firmly believed in by all, and this is probably still so.

Both pagan and Christian Tikopia still share the same attitudes of interest in and acknowledgement of the rights of specific groups to conduct the ceremonies. The standards are common in that the gods invoked in one ceremony are shared by other groups. On the economic side, distraint on crops of the *aru* type calls on community supplies. Hence such a ceremony is not just something peculiar to a group, unique, untouchable ; it is in some ways part of the expression of community values, one way of using community resources. This representative function is seen most obviously in the case of the songs of the *Kura* of Marinoa, with their highly sexual content. They may have tended to arouse desire in some of the young people when they were chanted. But it cannot be argued for a moment that the Marinoa people have any kind of prerogative of, or special interest in sex. In my discussions there was never any hint that sex had any specially personal associations for them. The songs fall into line with others chanted on various other occasions of ritual significance. The Marinoa group is the custodian of one set of esoteric symbolic materials on the sex theme, not the licensed practitioners of a sex cult.

A final point is that even before the abandonment of some of them, the incidence of these ceremonies was rare. They were widely separated in time. In their recreational and ritual aspects, no time signal is embodied ; they might well be annual events, or seasonal like those of the Work of the Gods. The economic aspect, involving the accumulation of quantities of food, demands some care in organization, and imposes a bar against too frequent celebration.

This is particularly the case when there is general distraint on crops of the community. But the regulating factor in the total complex of elements is in some cases at least a stage in the social progression of an individual. A Taumako chief celebrates his first feast, a Marinoa elder confers status on his daughter. From this angle, the ceremony is focussed on timing not as a phase of natural sequence, but as a phase of an individual's appreciation of social situations. A chief, an elder, has to evaluate situations from the point of view of the reputation the celebration will bring to him personally, the state of his resources, the support he is likely to command from his kinsfolk and neighbours, and the alternative demands he envisages. The affair has then not only its structural aspect; it has also an organizational aspect which determines up to a point how it will enter the structural field.

RAYMOND FIRTH.

# ARCHÆOLOGY OF TANDANDJAL CAVE, SOUTH-WEST ARNHEM LAND

By N. W. G. Macintosh

## Geography

TANDANDJAL is the site of a recent and short-lived Government Aboriginal Settlement and lies within the boundaries of Beswick station, purchased by Native Affairs Branch early in 1947. It is 44 miles east-north-east of Maranboy siding, 62 miles east-south-east of Katherine, nine miles west-north-west of Beswick homestead, 104 miles south-west of Mainoru and 120 miles north-north-east of Wardaman territory (Willeroo and Delamere). The western shore of the Gulf of Carpentaria lies 200 miles east, the northern coast of the Northern Territory is 200 miles away, and the eastern boundary of the Kimberleys lies 330 miles west and slightly south of Tandandjal.

The settlement is on the northern edge of a grass plain about one mile in diameter surrounded by low wooded hills. North-east is the Waterhouse River system communicating with the Beswick River system and ultimately the Roper River and the Gulf; the settlement itself is the site of permanent spring water presumably derived from the Waterhouse. To the south-west is "dry" country. The aboriginals at Tandandjal are in the main members of the Djauan tribe, but there are also a few Yangman and Ngalpun. These had all transferred to the site in November 1948 from a settlement 40 miles further west.

Prior to the establishment of Tandandjal the "old" road from Katherine to Beswick ran 3½ miles south of the present "new" road. The cave is half a mile south of the "new" road, three miles north of the "old" road, at a position 3½ miles west of Tandandjal settlement. The map reference is 1560, Lat. 14° 33′ S., Longit. 133° E. It is in the middle of a fairly heavily wooded area, lancewoods, eucalypts, etc., and a series of shallow gullies run to the west or south-west and subsequently turn south-east, probably losing themselves in open country. In the dry season there is no water in them or in their vicinity. According to Mr. Frazer-Allen, the superintendent of the settlement, the nearest water in the dry season is two miles to the north in a gully at Bonorunlik.

There was therefore no reason to anticipate that the aborigines at Tandandjal settlement would possess knowledge of, or even be aware of, the existence of the cave. Subsequent inquiry confirmed this, as only one native at Tandandjal, Paddy, a very old man, admitted knowing its existence. He said that his father, when a small boy, had known the last man who worked in the cave. No further information was obtained.

## Discovery

On June 5, 1948, Mr. Ivan Frazer-Allen was making a reconnaissance of the local regions. Having climbed to the upper margin of a heavily wooded gully, he glanced down the opposite bank and observed a glint of white on a vertical rock face. Investigation disclosed the mouth of a cave, the floor of which was littered with stone artifacts, and paintings were present on the outer and inner walls.[1] An opportunity for reporting the cave's existence occurred a few months later when Professor A. P. Elkin arrived to continue his investigation in the region on the south-west borders of Arnhem Land. As Professor Elkin's visit on that occasion was partly exploratory with a view to concentrated work there in the following year, the matter of the cave remained in abeyance until July 1949, when the Elkin Expedition arrived at Tandandjal. The primary object of the expedition was the permanent recording of aboriginal song cycles on wire recorders, their interpretation and the simultaneous colour film recording of the ceremonies. Other investigations such as physical anthropology and archæology were secondary, but the intention was to deal with these latter to the extent permitted by the main objectives.[2]

On August 1st Mr. Frazer-Allen led Mr. John Thompson of the A.B.C., a Djauan native named Little Paddy or Bdinji Bdinji, and the writer to the cave. Preliminary observations and recordings were made and the reactions and comments of the Djauan noted. Subsequently the work of excavating the cave floor and meticulously recording the paintings and the cave environment was carried out by Mr. Thompson and the writer in a working period of four days: Thursday 4th, Sunday 7th, Wednesday 10th and Thursday 11th and at its termination Professor Elkin and the remainder of the party inspected the site, the results, and the terrain. Axes, picks, shovels, sieves and galvanised iron were taken by jeep to within half a mile of the cave on the first occasion, but on the other occasions the day's water supply, etc., had to be carried on foot from Tandandjal, as transport was fully occupied with the other objectives of the expedition.[3]

## Cave Site

The cave is on the northern bank of a watercourse which is completely dry in August. The watercourse meanders in curves every 30 metres, but the mean axis bears 255° E., i.e. running east-west. Its bed is about 2·5 metres below the level of the cave floor and is strewn with boulders averaging $1 \times 1 \times 0{\cdot}5$ metres in size; numerous small rocks averaging $16 \times 8 \times 8$ cms. occur also. The gully lies between wooded slopes about 15 metres high. These eastern slopes converge uniformly on

[1] Mr. Frazer-Allen had been interested in and had been collecting aboriginal implements previously; he therefore merits the highest commendation for leaving the cave completely untouched until he had the opportunity of reporting its existence to some scientific party.

[2] The writer's main interest was in the physical anthropology of the Djauans; a paper is now in preparation.

[3] To Mr. Thompson for sharing equally in the labour of excavation the writer is extremely grateful.

the eastern commencement of the gully where a barrier of tree stems and rocks probably represent a cascade in the wet season.

The eastern end of the cave is 15 metres west of this barrier. The cave lies in an east-west longitudinal axis, its opening faces due south and its transverse axis is on a north-south line. At no time does the sun shine directly into the cave, at least in the month of August. The length of the cave floor is 7 metres and the width 5·4; maximum height in the southern quadrant from floor deposit to roof is 0·98 metre and in the northern quadrant 1·4 metres; in other words, at no place inside the cave can a person over five feet high stand upright.[4] The inner wall of the cave presents a concave recess about 3·3 metres in length at its western end; at its northern end the lower part of the inner wall projects with a slightly convex face and on this surface the paintings of the inner gallery occur. A secondary projection on the northern extremity of the inner cave wall carries a geometrical painting and a stencilled hand.

The rock in which the cave exists is probably a quartz porphyry, probably duri crust, a residual deposit of Tertiary age. The margins of the walls where they meet the floor deposit are weathered to a kaolin-like consistency. There are some blackened patches on the under surface of the roof. Roof and walls are thickly encrusted with hornet nests of the Superfamily *Sphecoidea*. The rock immediately above the entrance presents a flat vertical face, and on it are the paintings of the outer gallery and a number of stencilled hands. This vertical face is overhung by a projecting ledge of the roof to a distance of 3 metres. The margin of the ledge is in the same vertical plane as the junction of the cave floor and the northern bank of the gully. The external paintings therefore receive considerable protection from the elements.[5]

### Artifical Arrangement of Rocks

A large block has fallen from the western end of the overhanging external ledge and lies at the western margin of the cave. From this block a series of rocks obviously arranged by human agency extends in an arc separating the cave floor from a 3·0 metres wide area of level soil which then drops abruptly down the northern bank of the gully. (See Fig. 1, Pl. 3).

On the southern side of the gully about 70 metres south-west of the cave there is a stone circle about 1·5 metres in diameter on level ground. The stones are about 30 cms. long. Outside this circle is another one of smaller stones. A line of stones at irregular intervals leads north-east for about 20 metres to a second site where two

[4] A. P. Elkin, in "Rock-paintings of North-west Australia," *Oceania*, Vol. I, No. 3, p. 258, refers to caves where the roof is so low that the paintings "can only be seen by crawling along the floor and then lying on one's back."

[5] J. R. B. Love in "Rock Paintings of the Worrora," *Journal Royal Society of Western Australia*, Vol. XVI, 1930-31, p. 7, in discussing the age of such pictures, says that in the west "The vertical pictures . . . kept better than those in a horizontal position on the overhanging face of rock" and that the clay of the paintings flakes off the rock due to dampness. Also, on p. 9, he describes a native method to preserve the pictures from the rain by means of a beeswax barrier.

circles lie adjacent to one another and ringed by larger, more widely spaced stones. The north-east line continues for another 21 metres to a third arrangement of stones, this time a single circle, almost on the edge of the southern slope of the hill dropping down to the gully. In a line due north from here there is after an interval of 10 metres a continuous regular line of stones extending like a pallisade for 7 metres down the slope to the southern edge of the gully opposite the eastern end of the cave. On the outer (upper) surface of the roof of the cave is a small cairn of stones.[6]

A review of information relevant and possibly applicable to these findings is is to be found in Elkin's "Totemism in North-West Australia."[7] Immediately east and north of Walcott Inlet such artificial arrangements of stones in a ring are regarded as put there by Ungud, and so belong to mythological time; but they belong also to present time in being active in the increase of edible species. In that region the circles are larger and the stones are erected on end in more impressive fashion than at Tandandjal. These stone arrangements are referred to as Talu heaps, but as Elkin points out,[8] *talu* applies to the complex rite and to the local group concerned rather than to the stones, which are merely part of the complex.

Among the Ungarinyin and in the Forrest River area wherever painting galleries occur the interpretation of the *talu* sites is different in that there are no *talu* ceremonies connected with the stones. The ceremonies instead are associated with the paintings in the galleries, and the *ungud* stones are accessory as spirit centres for the particular species or phenomena drawn on the galleries.[9]

The cairns or heaps of small stones have been described by a number of observers since they were mentioned by Grey[10] and in most cases they have been described as erected on bare rock surfaces. According to Elkin they go back to Ungud time but are effective in present time as protectors against sickness, and further, the sites are associated with "dreaming." These facts line up quite well with the observations at Tandandjal so that even without an informant the following tentative conclusions seem logical.

The painting gallery, the cairn on the bare rock surface of the cave roof, the three sets of stone circles and the lines of stones at the Tandandjal site indicate derivatives of doctrines operative in regions lying between 350 and 650 miles to the west, Further, as all these traits occur on the one site at Tandandjal, a fusion is suggested of the procedures which remain discrete in individual areas in the Kimberleys. Without direct information, this must remain speculative, but it

[6] The stone circles were discovered by Professor Elkin and Mr. W. E. Harney on the final Thursday, 11th. The writer had failed to observe them previously. A subsequent sweep beyond the area did not disclose any others. Mr. Harney thought a line of stones continued up the northern gully slope, but their occurrence was too irregular to permit an assumption of human agency.

[7] *Oceania*, Vol. III, No. 4, June 1933, pp. 466-471.

[8] *Idem*, Vol. III, No. 3, March 1933, p. 285.

[9] *Idem*, Vol. III, No. 4, June 1933, pp. 470-1.

[10] In 1837, p. 161, Vol. I, G. Grey, *Journals of Two Expeditions of Discovery in North-West and Western Australia*, 2 Vols., 1841.

is not difficult to concede the fusion of three basically similar traits when they have each become attenuated far from their source.[11]

## Paintings

Grey (1838) was the first to observe Kimberley type painting ; his interpretation and the subsequent interpretations of Worsnop (1897), Mathew (1899), Sollas (1911) were made without the background of knowledge of Kimberley mythology. Bradshaw (1892), Brockman (1902), Basedow (1916), Easton (1922), the Frobenius party (1938) recorded the paintings in various galleries in the north-west region and interpreted them in the main without the assistance or confirmation of native informants. Love (1917, 1930, 1939), Kaberry (1936), Elkin (1928), Capell (1938) and Coate (1947) saw the paintings in the company of informants and obtained records of the associated mythology in the languages of the tribes of the region. The information in the papers by this latter group, and particularly the correlation by Elkin (1948)[12] provides not only the meaning of these paintings but also indicates how widely off the mark were the earlier interpretations.

At Tandandjal no native informants were available. Nevertheless, from the collateral material in the cave and by applied research into the literature quoted above some results have been obtained. Tandandjal is 550 miles E.N.E. of the Prince Regent, Glenelg, Sale River, Caulder River, Drysdale River area, the region occupied by the Worora, Wunambul, Ungarinjin, Galaruŋari and others. It is worth observing that Capell (1939)[13] stated : " East of the Northern Kimberley area, there are cave or cliff paintings found sporadically right into Arnhem Land, but these have not been studied at all, so that it is impossible to say whether they have any connection with those of the Northern Kimberleys, though the occurrence of languages with essential grammatical features of the northern Kimberley languages should not be forgotten."

## The Tandandjal Galleries. (See Text-fig. 1.)

The paintings were meticulously plotted on centimetre graph paper by systematic survey. The line drawings have been retraced on plain paper, together with the original scale, so that irrespective of the size of publication each figure can be analysed for size and checked by any future investigator of the cave.

### *The Inner Gallery.*

Reading from left to right there are five paintings : (1) a humanoid figure ; (2) a red infilled oval with two white designs superimposed ; (3) a wallaby ; (4) a snake ; (5) a red infilled painting almost indecipherable. The oldest of these are

[11] J. R. B. Love, *op. cit.*, p. 9, observed that the Worrora can hold even two " conflicting traditions without troubling to reconcile them."

[12] A. P. Elkin, " Grey's Northern Kimberley Cave-Paintings Re-found," *Oceania*, Vol. XIX, No. 1, pp. 1-15, Sept. 1948.

[13] A. Capell, " Mythology in Northern Kimberley, North-West Australia," *Oceania*, Vol. IX, No. 4, p. 393, June 1939.

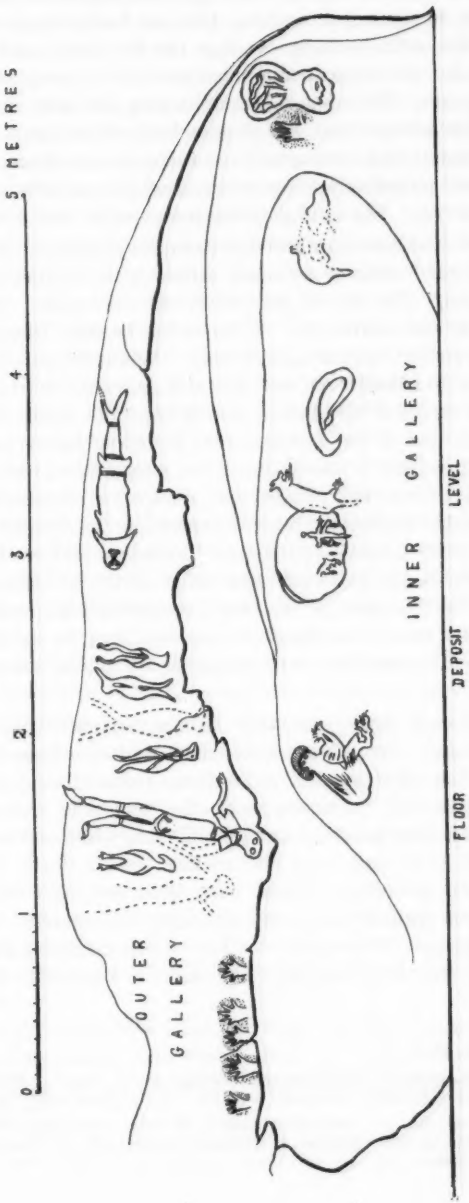



*Fig.* 1.—*The complete series of paintings and stencils in the Tandandjal cave. Drawn to scale on centimetre paper; method: direct survey from rock surfaces to graph paper, p.* 9.

the red infilled oval and the almost indecipherable figures in red on the extreme right. These show no signs of retouching, they are badly weathered and faded, the tail and rump of the white wallaby overlaps the red circle, and section 4B of the trench excavation (i.e. the deepest innermost part of the cave, *vide infra*) is richest in powdered red ochre. The almost indecipherable set show the tail end of some marsupial on the left and the beak end of some bird on the right. The intermediate area is badly smudged. An attempt at reconstruction is shown in dotted lines in the survey chart and tentatively the interpretation is a wallaby and a brush turkey painted (infilled) in red. The total painting measures 52 cms. $\times$ 24 cms.

The infilled red oval has two white figures superimposed on this red background. The figure on the right resembles a goanna, although Mr. Harney suggested a brolga or native companion. The one on the left is indecipherable. The oval measures 50 cms. across by 40 cms. vertically. As far as can be seen, these early pictures are endeavouring to represent natural species only. While the painting of figures on a background of different colour is not uncommon in Australia, one inevitably compares this oval with that recorded by Gray on March 26, 1838, in his plate No. 3, p. 204, showing spearheads and a red kangaroo on a yellow background. Coate,[14] re-describing this oval, reports a poorly drawn red kangaroo and no spearheads on an ellipse 3 ft. by 2 ft., i.e. one-third larger than the oval at Tandandjal. These faded paintings at Tandandjal probably represent elements in the original or lowest stratum of cults associated with the cave and possibly are equivalent to the Agula beliefs of the Gwini tribe prior to the eastward penetration of the Wandjina cult into Gwini territory. If that be the case, Mr. Harney's suggested interpretation of brolga or native companion for one of the figures in the oval may be significant in that the Gwini tribe has dual organization into gurangula or native companion, and banar or turkey.[15]

The white humanoid figure, the while wallaby and the white snake appear to belong to a later period. In technique, execution and style they are identical, save that the humanoid has red stripes and red outlines around the head. Each has been retouched by overpainting, the snake most, the humanoid next and the wallaby least. The wallaby is very poorly drawn, is infilled in white and is not outlined in a different colour. It is 48 cms. long and 13 cms. across the body. The snake is also poorly drawn, but definition of head, neck, body and tail is obvious. It is also white infilled and not outlined, and some splashing has occurred at the margins in some of the retouchings. It is coiled in a loop which measures 44 cms. across and 24 cms. vertically. The total length of the snake is 1·0 metre and its maximum thickness 8 cms.[16]

[14] See Elkin, *op. cit.*, p. 7.

[15] For discussion of Agula and Wandjina relationships, see A. Capell, " Mythology in Northern Kimberley, North-West Australia," *Oceania*, Vol. IX, No. 4, June 1939, pp. 386-7.

[16] J. R. B. Love, *op. cit.*, p. 3, recorded that in Worrora mythology the present name of rock python is the same as the " primaeval feminine counterpart of Wonjuna," and that she ranks second only to him.

The humanoid figure is unique (Fig. 2, Pl. 3). It consists of probably a male body drawn in right profile in the sitting posture, buttocks and heels on the same horizontal level and knees semi-flexed. The semi-flexed elbows are resting on the knees. Both forearms, both hands and both feet are shown and the fingers and toes are extended. There are ten fingers and ten toes, but their portrayal is crude and irregular. The trunk is flexed forward at the hip joints and while the length proportions of legs, trunk and arms are more or less correct, the widths of arm, thigh and body are grossly disproportionate. The structures mentioned are infilled with white and not outlined, but there is a band of red across the thigh just above the knee crossed by four red stripes and another red band at the junction of shoulder and trunk with four red stripes on the arm in front of it. Five red parallel stripes run down the back and three more are across the body near the junction of trunk with thigh. The lower leg is very peculiar. In front of the shin above the ankle, the drawing is very irregular and at first glance looks remarkably like the lower end of a trouser cuff. Grey and Basedow would almost certainly have interpreted this as a garment of some sort. I am inclined to regard it as an irregularity of retouching and/or the result of an attempt to define the shape of feet and ankles. The head is presented in full face, unlike the profile body. The face shows two red eyes, no nose and no mouth (a hornets' nest is situated in the position that a mouth would occupy). The neck is poorly defined. A red band extends round the immediate margin of the upper face, forehead and back of the neck. From this band there extend 24 curved red lines between which is a white background and these are surrounded by an enclosing red semi-circular line which projects well down the back of the neck.

The representation of the human form in profile is rare in Australian aboriginal art. The presentation of the sitting posture is very rare. The combination here of a sitting profile body with a head turned into full face is unique.

The headdress measures 4 cms. from scalp to tips of " hair " (red lines). The face has a vertical length of 8 cms. The total length of the figure from tips of hair to tips of toes (if measured as an extended figure) is 1·0 metre. At first sight the figure, and particularly the head, immediately recalls Grey's original records from the Glenelg area and the Wandjina paintings of the Kimberley region.

*Discussion and Attempted Interpretation.*

Galaru is the rainbow serpent, and Galaru mythology is widespread in the east and south Kimberley regions. That Galaru people, together with their mythology, have migrated peripherally into Ungarinyin territory is shown by the following recordings.

(*a*) The associated text of a cave painting near Mt. Barnett in Wungudinda clan country, east Ungarinyin, says that Galeru came from the east.[17]

(*b*) Cave paintings and myths with Galeru as the central figure occur in east Ungarinyin country.[17]

[17] Unpublished text collected by Capell. See Elkin, *op. cit.*, p. 10.

(*c*) Kaleru doctrines are recorded as penetrating the eastern and southern Ungarinyin clans, then the western clans and across the boundary into Wurara country.[18]

(*d*) Galeru is the central figure also among the Unggumi, the southern neighbours of the Ungarinyin.

(*e*) Painted in a cave called Wirimodaŋeri in southern Galaruŋari country is a female Wandjina called Miiŋgun which is also the Ungarinyin name for the Nygina tribal country to the south.[19]

(*f*) The Wandjina Ralamara (frog) has a cave in Galaruŋari country. He was an Unggumi who spoke Nygina and was associated in myth with the father of Galaru.[20]

(*g*) A Wandjina named Gangida went to Galaruŋari from the head of Walcott inlet, that is, he moved eastward from the periphery into Ungarinyin territory.[17]

(*h*) One myth relates the meeting and instruction of Galeru people in Ungarinyin territory by various groups and heroes.[21]

(*i*) The correlation worked out by Elkin (1948)[22] indicates that the Galeru people moved north-west into Ungarinyin territory and established the Galaruŋari clan between the Charnley and Caulder waters. This clan split into groups ; one of these moved north to Guruluwin east of Bandidjin (the site of the cave paintings described by Grey on March 29, 1838) and their leader Wargalimada became a painting. From here some moved west to Bandidjin itself and founded the Bandidjin clan. Elkin, therefore, regards the cave paintings described by Grey on March 29 as essentially Galaru in tradition and doctrine, in other words intrusions from the south-eastern perimeter.

That the Wandjina cult is basic to Ungarinyin and Wurara mythology and is in a Western and Oceanic tradition seems to be established ; that the Galaru cult is superimposed upon and mingled with the Wandjina cult seems equally certain.[23] At the same time, the Wandjina cult was not static. The Wandjina cult is concentrated west of the Drysdale River. East of the Drysdale occur the Agula beliefs which Capell considers the lowest stratum of the Kimberley cults. Nevertheless Capell records a Wandjina painting in Woljamidi country in eastern Kimberley, and says that the Woljamidi having acquired certain parts of the Wandjina cult may have extended the new cult into the sphere of the old, by depicting their old national hero, Wolaro, in the likeness of a Wandjina painting.[24]

[18] P. Kaberry, *Aboriginal Women.*

Worrora, Worara and Wurara ; also Kaleru and Galeru, are variations of spelling as employed by the authors to whom reference is made.

[19] Elkin, *op. cit.*, p. 10.

[20] A. Capell, " Mythology in Northern Kimberley, North-West Australia," *Oceania*, Vol. IX, No. 4, June 1939, p. 399.

[21] Coate ; see Elkin, *op. cit.*, p. 10.

[22] A. P. Elkin, *op. cit.*, pp. 9, 10, 11.

[23] Capell, *op. cit.*, pp. 393, 403.

[24] Capell, *op. cit.*, pp. 388, 389.

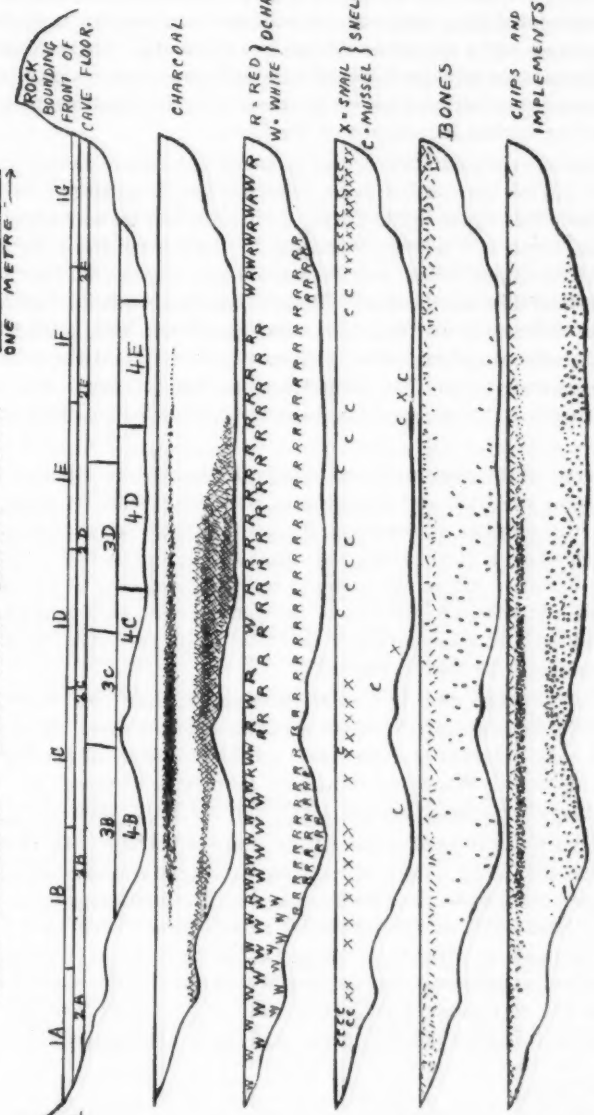



*Fig. 2.—Series of longitudinal vertical sections of trench excavation, showing distribution of charcoal, red and white colour material, shells, bones, implements and chips, p. 27.*

Wandjina is the main subject represented on the cave picture galleries of the Ungarinyin and Wurara tribes and one is situated in each *tambun* (horde country). Whether represented by a head only or with part or all of the body, the Wandjina has nose and eyes and a special headdress, but no mouth. He is causally connected with rain, the increase of natural species and the human race, and is related to *ungud*, the spirit homes of the natural species represented on the Wandjina painting galleries, and also to the human individuals of the horde.

A variation in presentation occurs in south Galungari country in the Bindjibi cave, where Elkin[25] recorded a figure over five feet long known as Djandad, the Thunder Man ; this figure, while having no mouth, had no nose either ; but across its feet was drawn a " normal Wandjina." Coate recorded a further variation north-east of Bandidjin ; these were monstrous figures having no nose and no mouth, but with vertical lines on the face. These represented Garirinja which the natives described as different from Wandjina, and associated with tornadoes. Further, they said that the Wandjina power had waned, that Galaru the Rainbow Serpent was no longer feared, but that Garirinja when touched arose and went " east " with the tornado, and while some Garirinja returned, others made new camps in the east.

A summary of the evidence seems to indicate that Galaru, Djandad and Garirinja are in the same tradition and represents a later wave than Wandjina. But in all these cults the method of depicting the central figure is approximately similar. In all of them there is the characteristic head and headdress and invariably absence of mouth. Variation lies in the presence or absence of nose or the substitution of vertical lines. Variation in the size of the figure would seem to depend on size of surface available, and presentation of an entire body, part of body or its complete absence appears to be purely random.

There is no other record of such paintings further east, but the Lightning Brothers of the Wardaman tribe show a fan-shaped headdress, no mouth, no nose, and striped body decorations. Davidson speaks of a style of portrayal " that has many similarities with Wandjinas though far from being identical."[26] Furthermore, the Wardaman closely associate the Lightning and Rain totems.

At Tandandjal, the head of the sitting figure is Wandjina-like save that a nose is not represented. The Galaru cult is known to have spread west and north-west to superimpose itself upon the Wandjina basis. The possibility must be considered now that the resultant fused cult penetrated to the east and north-east, being modified by impact particularly with such concepts as Garirinja, the Tornado gods, who are specifically cited as going east and forming new camps. In the absence of informants possessed of the mythological knowledge, this is speculative, but the combination in the one site at Tandandjal of so many traits of the Kimberley complex, the stone

[25] *Op. cit.*, p. 12.

[26] D. S. Davidson, " Aboriginal Australian and Tasmanian Rock Carvings and Paintings," *Memoirs American Philosophical Society*, Vol. V, 1936, p. 119.

circles, the stone cairn, the paintings of natural species and the Wandjina-Galaru-Djandad type head associated with a large snake of apparently similar age period is highly significant. Moreover, we are quite in the dark regarding the circumstances which caused such variation in the portrayal of the body as to produce a completely unique figure; but the variation itself is in keeping with the wide variety of body portrayal in the localized Kimberley area, as opposed to the relative constancy of face portrayal.[27]

*The Geometrical Painting.* (See Fig. 1, Pl. 3.)

Situated on a rocky projection of the northern end of the inner wall, the painting is quite close to the cave entrance. Its relationship to the other paintings is difficult to assess; but the technique is rough; it has a "splashed on" appearance and possibly belongs to the same time period as the snake, the humanoid figure and the wallaby of the inner gallery. To its right side is a well defined stencilled hand. The method of production has been to place the left hand with the palm against the rock, and white paint has been blown round it. The hand outline suggests that it belonged to a large adult male, and the terminal phalanx of the thumb is not represented. There is a suggestion of another stencilled hand closer to the geometrical painting and overlapped by the hand described above. This argues a deliberate intention of replacement, and perhaps represents a parallel procedure with the retouching of the paintings themselves.[28] The paint around the stencil and the paint of the geometrical figure appear identical in consistency. The geometrical painting resembles a figure eight or an hour-glass: the upper loop encloses two diagonal bars, two vertical bars and an irregular projection; the lower loop encloses a small horizontal line and an irregular projection.[29]

Without an informant, no interpretation of the figure is possible; it can only be commented that geometrical designs are characteristic of the central and more southern regions of the continent.[30]

[27] For discussion of Wandjina and rock python (*kian*, i.e. mate of Wandjina), and of Galaru and Rainbow serpent, see A. P. Elkin, "Totemism in North-western Australia (the Kimberley Division)," Part II, *Oceania*, June 1933, Vol. III, No. 4, pp. 461, 463; "The Rainbow Serpent Myth in North-west Australia," *Oceania*, Vol. I, No. 3, Dec. 1930, pp. 350-1; *ibid.*, "Rock-paintings of North-west Australia," pp. 276, 278, 279, and J. R. B. Love, *op. cit.*, p. 3.

[28] Opposed to this idea is some evidence from J. R. B. Love, *op. cit.*, p. 13, indicating that stencilled hands and feet are equivalent to our European record of presence by signature or initials.

[29] This painting is also of interest in that it modifies the statement by Davidson, 1936, p. 103: "In North Australia the geometrical forms of Central Australia appear to be lacking in cave art, although present in a large area on portable sacred objects."

[30] See, for example, H. Basedow, Plates in "Anthropological Notes Made on the South Australian Government North-west Prospecting Expedition 1903," *Transactions Royal Society South Australia*, Vol. 28, 1904, and "Aboriginal Rock Carvings of Great Antiquity in South Australia," *Journal Royal Anthropological Institute*, Vol. 44, 1914. The nearest resemblances are shown in C. P. Mountford's "Aboriginal Rock Carvings in South Australia," *Australian Association Advancement of Science*, Hobart, 1928, pp. 343, 349, 351, 353, 362; No. 163 is the closest approximation, but is by no means identical with the painting described above.

If this geometrical figure is not indigenous to the area, but represents instead an importation from the south, it would lend further confirmation to the observations of Capell in 1939.[31] He pointed out that the *Maiayari* (bullroarer), *gundju* (ceremonial sticks) and the cult of Djanba had come into the north-west from Arawori (the south-east) and/or from Warmala, which " is a term applied to all the tribes bordering on the desert." Capell said this stratum was one of " culture diffusion, not of migration of peoples." This cult of Djanba he considered " not only modern, but in process of infiltration."

Secondly, if the geometrical painting is a cultural element derived from southern regions, it coincides very well with the discovery at the Tandandjal site of *burins* and Tula adze flakes. The northernmost record of the Tula previously was from the Wardaman tribe 120 miles to the south,[32] while *burins* have never previously been reported from the Northern Territory. (The implements are discussed later in this paper.)

*The Outer Gallery.* (See Figs. 3, 4, Pl. 3, and Text-fig. 1.)

On the outer gallery there are five stencilled hands, five chiroptera of which four are shown in the inverted position with the head down and feet up, while the fifth is reversed, a shark and two humanoid figures in an " upside down " position with the head down and the feet up.

The stencilled hands have been effected by blowing white ochre round the hand laid palm to the rock face. Each is a left hand and all phalanges are present. They are 25% smaller than the average adult European male hand. Sample measurements of one of the stencils were: span 14 cms., middle finger tip to web 6 cms., index 5 cms., thumb (two phalanges) 4·5 cms., wrist 5·5 cms. across. The Djauan native who was present at the first inspection of the cave drew attention to the stencils, exclaiming " piccaninny hands," placed his hand on the stencils and made a gesture of blowing with his mouth. He was a fully initiated man taking part in Yabuduwara ceremonies, and the fact that three of the stencils were as large as his own hand did not cause him to modify his comment.

The shark is attractively and realistically drawn and is one metre long. But detailed analysis shows considerable departure from anatomical accuracy. Although presented in ventral view, the two lobes of the caudal fin are defined. As a result of weathering, the tail fin now appears heterocercal, which would be correct, but reconstructing the weathered portion it is seen that the original painting gave equal

[31] A. Capell, " Mythology in Northern Kimberley," *Oceania*, Vol. IX, No. 4, June 1939, pp. 395, 400, 403.

[32] D. S. Davidson, " Archæological Problems of Northern Australia," *Journal Royal Anthropological Institute*, Vol. 65, pp. 145-183, 1935. In the beautifully arranged collection of aboriginal artifacts belonging to and collected by Mr. H. R. Balfour of Toorak, Melbourne, there is an excellent series of Tula adze flakes, one fine specimen presenting a Tula at one end and a Pirri at the other end, both hafted in gum. These were collected by Mr. Balfour a little to the south and about 150 miles to the east of Tandandjal. I am grateful to Mr, Balfour for showing me this material which is not recorded in the literature.

length to the dorsal and ventral lobes of the caudal fin. The mouth is straight and transverse, instead of crescentic, and the two circles in front of the mouth if intended to represent eyes are too close and too ventral, while if intended for nostrils they are correct in position but are too large. Two pectoral and two pelvic fins are reasonably placed, but an additional fin, presumably a first dorsal, has been added to this ventral view. The painting is outlined with red ochre and infilled with white, which has been painted on in longitudinal strokes; it is decorated by transverse red bands and by two lines diverging forward from the mouth.

Of the five chiroptera (flying foxes), four are drawn in the normal resting position, i.e. inverted, hanging head down, suspended by the toes of the inferior extremities. One is drawn in the walking position with head up and legs down. This last was named " duck " by the Djauan, but he subsequently agreed it could also be a " blyn box." One of the inverted four is very badly weathered, but the remainder are well defined. They are outlined in red, white infilled and are decorated with red bands. No two are alike in outline, nor is the pattern of decoration similar in any two. The one next to the man's right hand measures 44 cms. long and 15 cms. across the body.

Of the two humanoid figures (" upside down "), one is so weathered that only the vaguest suggestion of outline can be made out and further description of it is not possible, beyond saying that head and body measure about 21 cms. in length and the right arm is about 18 cms. long. The other humanoid is very clearly defined, only the left arm having weathered away. It is the larger of the two figures and its measurements are: total length 1·06 metres, body 31 cms. long and 13 cms. across, head 12 cms. long and 9 cms. wide. It apparently represents a male but there is no evidence of circumcision or subincision. The head is asymmetrical, there are two eyes, but no nose, no mouth and no headdress (hair). The figure is anatomically distorted, i.e. being over-elongated and over-attenuated. It is outlined in red ochre and infilled with white; and red bands occur at ankles, knees, inguinal regions, chest, neck and arm. The right hand has five digits, but the digits of the feet are not defined. The continuation of the legs down into the splayed out feet is common in Australian aboriginal portrayal of the human body. The Djauan native on first glancing at the paintings said " lubra," then added " no, man."

All these paintings of the outer gallery very obviously belong to the same school and the same period and are subsequent to those of the inner gallery. But all have not been repainted or retouched to an equal degree. The " upside down " man is very clear, the bat on the man's right only slightly less so, the shark slightly less again, and the bat on the man's left a degree or so paler still. The upright bat and the inverted one next to the shark are very pale, and the remaining bat is only a vague blur, while the second upside down man is almost obliterated.

*Discussion and Attempted Interpretation.*

All the paintings of the outer gallery are obviously of a different tradition from the other paintings in the cave. In technique, method of portrayal and general appearance they bear more resemblance to the paintings found on the northern

coasts of the Northern Territory than to any other recorded Australian paintings. Although Wardaman paintings 120 miles to the west include flying foxes, they are all drawn headless and hanging by the feet. Also the style and the colours are quite different.[33]

The total data available then is the portrayal in northern style of a shark, flying foxes hanging head down and humanoid figures also hanging head down ; a presentation which as far as records go is unique in Australian aboriginal painting. The excellent picture of the shark, occurring here, 200 miles from the nearest salt water, also suggests a derivation of this tradition from the north, north-east or east.[34]

It seems possible, however, that attempted interpretation can be carried beyond this in the light of the Maraian ceremonies subsequently studied by the Elkin expedition at Mainoru, 104 miles to the north-east.[35]

The Maraian ceremonies as expressed at Mainoru present the doctrines of Tauworor ; Tauworor being mythological site where the cult-hero " put out " patrilineal lines of human beings and lines of natural species. This hero was Muitj, the great life-giving Rainbow-Serpent who travelled the country establishing spirit-centres and accompanying Kunapipi, the great fertility mother.[36]

The sacred emblems or *rangga* of Muitj take the form of poles on which are conventionalized paintings of natural species associated with the tribesmen of some particular Tauworor. In the Maraian the tribesmen who have gone back to their spirit home are called up, and the shades of the natural species are called from their dreaming places ; and so those present are united with those who went before, and with the natural species, and with Tauworor.

The Maraian ceremonies observed at Mainoru were carried out by the Dua and Jiritja moieties of Rembaranga and Djinba tribesmen. The rangga of the Dua moiety represented the rainbow, the rainbow-snake, mosquito and mud-cod. The rangga of the Jiritja moiety represented wild-dog, salt-water, flying-fox, spider and stone-country dreamings.

On one of the Jiritja rangga were painted, in addition to the other associated totems, eight flying foxes, of which six were painted hanging with their heads down and two in the walking position with their heads up. The style of these paintings

[33] See Plate 4, p. 116, in D. S. Davidson's " Aboriginal Australia and Tasmanian Rock Carvings and Paintings," *Memoirs American Philosophical Society*, Vol. 5, 1936.

[34] The finding of this painting of a shark contradicts the view expressed by most writers that the paintings deal with local objects ; for example, J. R. B. Love, *op. cit.*, p. 4, " some animal, fish, root, plant, fruit, that abounds in that particular locality." Also Davidson, *op. cit.*, p. 103 : in the Alligator River region, " as seems to be usually the case, the drawings depict the common animals of the region."

[35] The brief observations on the Maraian cult which follow are partly derived from my own observations, particularly the details related to flying foxes, but in the main from personal communication by Professor A. P. Elkin in the field and subsequently. A full publication of the Maraian by Professor Elkin will appear in the near future.

[36] See R. M. and C. H. Berndt, *American Anthropologist*, Vol. 51, No. 2, 1949, p. 213, and *Kunapipi*, R. Berndt, 1951.

was very similar to those on the cave at Tandandjal. The decorations on the flying-foxes were also similar, although none were precisely alike.

Furthermore, at the termination of the essential elements of the Maraian ceremonies an exchange mechanism was carried out wherein the Jiritja said: we "give" flying-fox to the Dua (payment was made in return). In the course of the procedure flying-foxes were painted on the backs of Dua men by the Jiritja. The paintings were made as white infilled pictures outlined with black. Then the black was overpainted by red, and, in addition, red decorative designs were superimposed on the white infilling of body, neck and head of the flying foxes. Subsequently, the Dua painted the flying foxes on themselves in red and white, neglecting to use the preliminary black outlines. Once again the style and the designs of the paintings were similar to, but not identical with, one another and those of the cave at Tandandjal. Also a majority of the paintings showed the flying fox hanging head down, a minority were painted head up. Later in the evening of the same day the rangga of Muitj the Rainbow-Snake was brought out from the Dua shade house and placed in a horizontal position on forked saplings driven into the ground. Seven Dua men with flying foxes painted on their backs then hung by their hands from the Muitj rangga. In emulating flying foxes hanging from the sacred branch, they were reenacting the myth wherein Muitj had "put out" man and flying fox at the Tauworor.[37]

A direct application of this information to the outer gallery of paintings at the Tandandjal cave appears highly possible. The upside down men are emulating the flying foxes painted beside them; they are literally flying-fox men and the outer gallery expresses totemic relationship between man, flying-fox and shark. Although no explanation was obtained of why the majority of flying foxes were painted head down and a minority head up, it is suggested that there is an obvious and logical reason.

The painting of a few flying foxes in the walking position expresses the association of flying fox with man, just as the upside down man expresses association of man with flying fox; such a presentation acknowledges and demonstrates derivation from the same dreaming place at the hands of the creative cult hero.

The puzzle of the painting of a shark 200 miles from the nearest salt water can perhaps be solved. The shark was probably one of the species "put out" by the creative cult hero at a spirit-centre on the coast, together with man and flying fox. In his subsequent wanderings across the country, the creative hero established new dreaming places. At these, the tribesmen acknowledge and commemorate the

[37] Although a full account of the flying fox mythology was not obtained, considerable detail apart from the outline presented above was noted. For example, Professor Elkin noted the differentiation between *wolga wolga* or *kangulgul*—the large edible flying fox (Megachiroptera) of the Dua moiety and *ra:rg* the small lagoon bat (Microchiroptera) of the Jiritja moiety which at the same time was linked with *delawaritj*—the salt water *rangga*. Some flying fox dreaming sites were geographically placed also. The writer was told by one of the Rembaranga Dua of a flying fox dreaming on an island in the river to the south of Mainoru where the old people had killed and eaten flying foxes and the rainbow had come down and killed them in turn.

patrilineal line of human beings and natural species right back to the original spirit home. These principles were seen and studied as part of a living culture at Mainoru. There, more than 100 miles from the sea, the conventionalized symbols for salt water and salt water fish were painted on the salt water rangga and on the bodies of the tribesmen, and the shades of the salt water totems were called up from the Tauworor to which they had returned. The retouching of the cave paintings obviously has a significance similar to the repainting of the sacred rangga whenever these commemorative ceremonies are held. At the conclusion of the Maraian at Mainoru, the rangga were buried in the mud of the lagoon. They will stay there until the next Maraian, when they will be brought out and repainted.

It is therefore suggested that some cave paintings, in particular these of the outer gallery at Tandandjal, are to be regarded not as mere depiction of local natural species and an associated desire for their increase, but rather as an acknowledgement and commemoration of the creative Dreamtime and a linking of the present people and species with the cult hero, people and species of that time. In the retouching of these paintings there is symbolized a re-enactment of the creative myth, and the past is brought to the present. In other words the paintings are memorials to the mythological past and acknowledgements of man's indebtedness thereto.

The Djauan tribe, some of whom now live in the vicinity of Tandandjal, do not have the Maraian cult ; in any case the Djauans may not have been craftsmen at the cave, which appears to have been unoccupied and unattended for the last 60 years at a conservative estimate.

It appears likely then that the cult associated with the outer gallery at Tandandjal is derived from a northern tradition[38] which was earlier but basically similar to the present cult of Maraian.

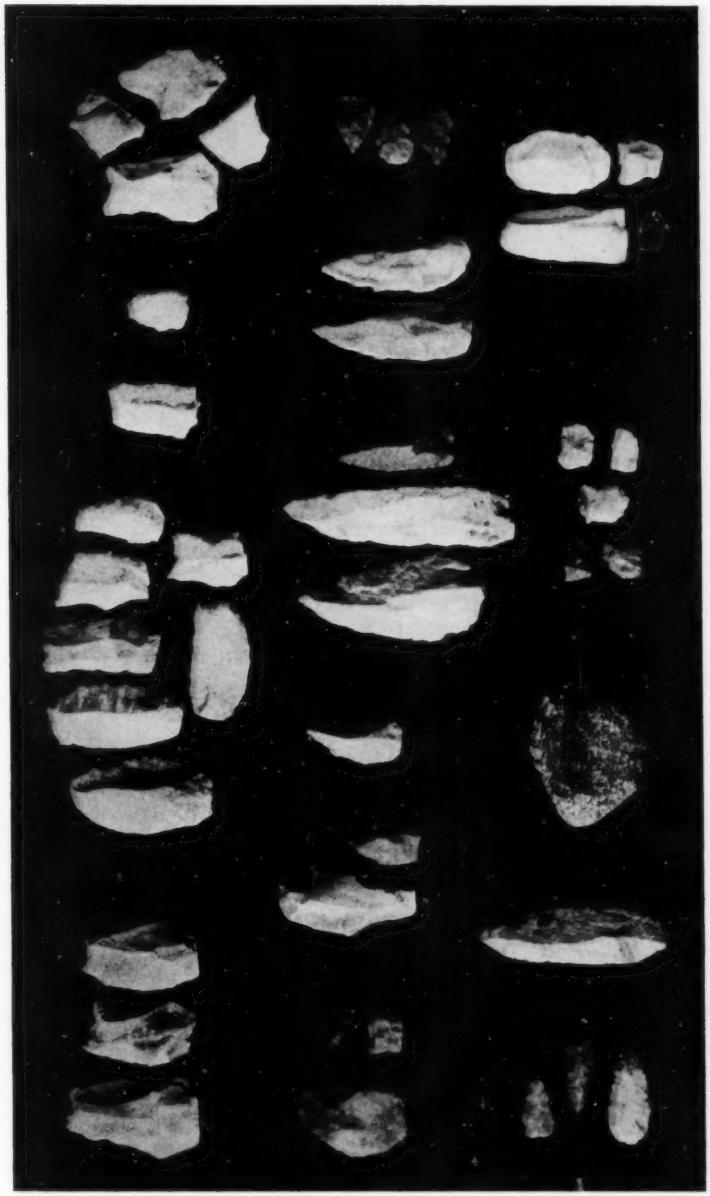
## Excavation

*Method and Material Recovered.*

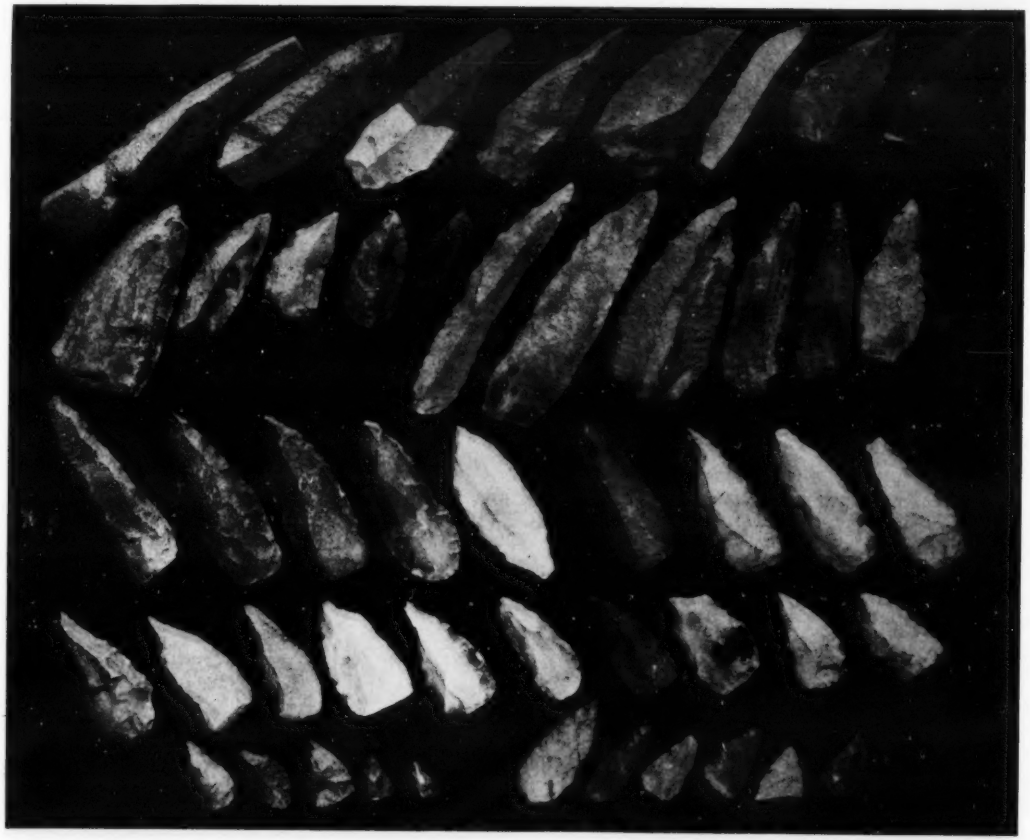
Text-fig. 2 shows a longitudinal vertical section of the trench excavated to the bottom of the cave deposit. The surface length from the anterior to the posterior margin of the deposit was 5·4 metres. The rock floor of the cave was irregular but more or less basin-shaped, with a maximum depth of 0·44 metre in two places, one near the middle of the cave and one nearer the inner wall where there is a localized circular depression of the floor, about one metre in diameter.

The trench was dug 0·6 metre wide at the surface and stepped, i.e. narrowed to 0·45 metre width at the cave floor. The excavation commenced at the edge of the inner wall and the deposit was removed in four layers. The surface layer was taken off to a depth of 4·0 cms. and in rectangular sections each approximately 0·75 metre long. The sections have been labelled 1A to 1G. The second strip was taken off as a 6·0 cms. layer and in sections labelled 2A to 2F. The third strip was removed as an 18·0 cms. layer in sections labelled 3B to 3D. The final and deepest layer

[38] *Vide* L. Warner, *A Black Civilization*, 1937.



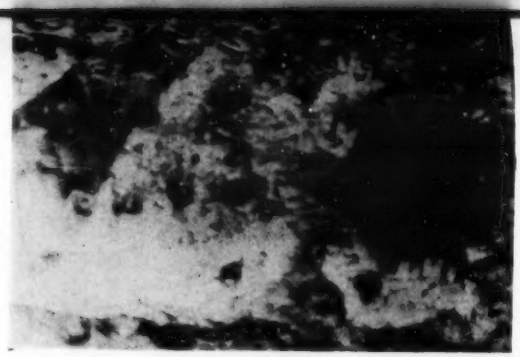
Top line : *Illustrating variety of scrapers.* Middle line : *Tulas, burins, trimmed points and Pirris.* Bottom line : *Biface points, untrimmed point, edge ground axe, microliths, artifacts from lowest stratum.* Photography by Woodward Smith



*Illustrating continuous range of points. Reading from left to right and from above down.* Nos. 1–8: *Untrimmed Leilira blades.* Nos. 9–13: *Trimmed on one margin.* Nos. 14–20: *Fully trimmed on one margin, partly trimmed on other margin.* Nos. 21–39: *Fully trimmed on both margins.* Nos. 40–44: *Uniface points (Pirri).* Nos. 45–50: *Biface points.* Photography by S. Larnach.

1

2



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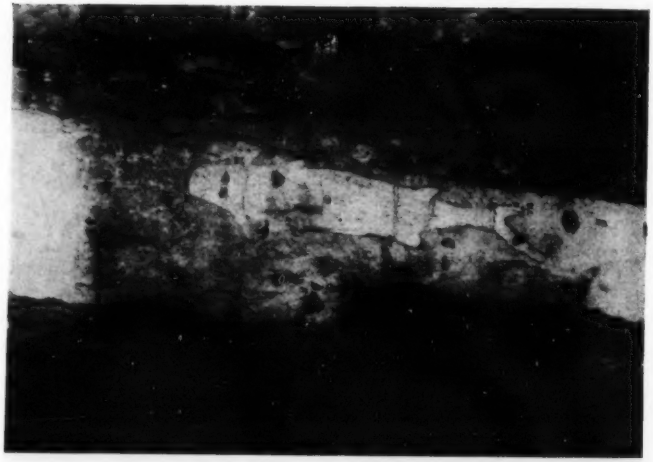

Fig. 1 (*a*) *Crouching man indicates height of cave entrance.* (*b*) *Above and behind man's head, geometrical painting on projecting rock inside cave.* (*c*) *Outer gallery of paintings on vertical rock above entrance—note inverted figure of man, flying fox and shark.* (*d*) *Anterior half of trench excavated in floor deposit.* (*e*) *Floor surface strewn with bones and artifacts.* (*f*) *Artificial border of rocks in a semicircle bounding front margin of cave floor.* **Photograph by Jesse H. Buffum of Boston, U.S.A.**

Fig. 2. *The humanoid sitting figure of the inner gallery. Note* (*a*) *profile body,* (*b*) *full face,* (*c*) *hornet nests clustered on rock surface.* **Photograph by C. C. Allom of Native Affairs Branch, N.T.**

Fig. 3. *"Upside-down" man and flying foxes* (*outer gallery*). Fig. 4. *Flying fox and shark* (*outer gallery*).

**Photograph by A. P. Elkin.**

varied from 2·0 cms. to 16·0 cms. in thickness, depending on the configuration of the rock floor, and its sections were labelled 4B to 4E.

Each section was passed through a fine mesh sieve. All material retained in the sieve was spread on a sheet of corrugated galvanized iron, examined and sorted by hand. Stone implements, reject material, flakes, chips, shells, bones and ochre masses were separately parcelled and labelled before proceeding to the excavation of the next section. The material which passed through the mesh was on the average a dark grey, crumbling, fine-grained soil; ash and red ochre powder constituted a varying proportion in the different sections. This material was emptied outside the cave.

Approximately 1,250 kilograms (about a ton and a quarter) of material was excavated from the trench and the average content of this material is shown in volume percentages:

| | | | |
|---|---|---|---|
| Soil and ash .. .. .. | | | 65% |
| Natural pebble, stone, or rock | | 30% | |
| Stone implements (Wt. 7 kilograms) .. .. .. .. | 2·0% | | 100% |
| Flakes, chips, reject material (Wt. 4·4 kilograms) .. .. | 1·25 | | 35% |
| Ochre masses .. .. .. | 1·0% | 5% | |
| Bones .. .. .. .. | 0·65% | | |
| Carbonized wood .. .. .. | 0·09% | | |
| Shells .. .. .. .. | 0·01% | | |

Two secondary trenches were excavated as a control. These were cut diagonally across the northern and southern quadrants of the cave, each approximately 25 cms. wide, and were taken straight down from surface to rock floor. Time was not available to give detailed examination to these but their appearance showed nothing to indicate that the findings of the original trench were not equivalent for the entire cave deposit.

Fragments fallen from the cave roof were found in the trench. Some occurred one metre in front of the inner wall, at the junction of layers 1 and 2. Others occurred three metres from the anterior edge of the floor and in the third layer; a small piece of a marsupial bone was immediately below these, but no stone artifacts. At the junction of layers 3 and 4 was a very thin layer (5·0 mm. thick) pinkish-white in colour which appeared to be soil impregnated with ash and red and white powdered ochre. It was the discovery of this line which determined the depth of excavation of the third layer. Whereas the soil in layers 1, 2 and 3 was grey to black, that in layer 4 was much lighter and pinkish, while in section 4B it was quite reddish in colour.

The concentration of implements, chips, charcoal and ochre in the trench varied considerably. The anterior section of the 4th layer was completely sterile. No implements or stone chips or charcoal occurred in the anterior two sections of layer 3. No implements, but a few flakes were present in the anterior sections of layer 2.

*Charcoal.* The greatest density of charcoal and wood ash occurred in layer 2, with maximum concentration at section C, less at section B, and decreasing through D and E, disappearing at the junction of E and F. A second area of charcoal and ash had its maximum concentration at the junction of layers 3 and 4 at about the middle of the cave floor. While occupying the full depth of layer 4 in this position, it only extended to the lower third of layer 3. In other words there is a distinct hiatus between an earlier and a later fire period in the cave's history, as indicated by the trench excavation.

*Ochre.* Red and white were the only colours found. Ochre masses varying from small pieces 1 cm. across up to large lumps 15 cms. in diameter occurred in layers 1 and 2, as follows: 1A white, 1B white and red, 1C red and white, 1D red and a little white, 1E red, 1F red, 1G red and white, 2A white, 2B white, 2C, 2D, 2E red. No lumps of ochre occurred below the boundary between layers 2 and 3. Ochre does not occur at all in layer 3, but reappears as powder infiltration of the soil at the junction of layers 3 and 4.

The hiatus between two time periods is here seen again in the use of ochre; but whereas in the earlier period red is concentrated towards the inner wall of the cave (4B), in the later period white is predominant towards the inner wall and red towards the mouth of the cave.

The distribution of colour in the trench accords quite well with the paintings on the outer and inner galleries. On the inner gallery a barely decipherable (?) wallaby and (?) turkey in red outline and red infilled, and two white (?) figures and (?) goanna or brolga on a circular red background have an older appearance than the other cave pictures and presumably are related to the red concentration in section B against the inner wall in the deepest layer (4). The sitting man white infilled, red outlined and striped, and the white snake on the inner wall show evidence of retouching more than once, and this retouching seems related to the white ochre concentrated near the inner wall in the surface layers.

The pictures on the outer wall are of a more advanced draftsmanship and technique, look fresher, show varied degrees of retouching, and are white infilled but copiously banded and decorated with red which matches the finding of red and white ochre in the surface layers of the outer end of the trench. The barred circle is not readily fitted into either the earlier or later period, but its "splashed on" appearance is more like the method of execution of the snake painting than any of the others.

*Shells.*[39] Two types occurred in the excavation: a freshwater mussel, *Centralhyria angasi*, and the Melon shell or land snail, *Xanthomelon durvillii*, Family *Hadridae*. The material recovered included one complete melon shell, seven large fragments of mussel shell and 46 small or minute pieces of mussel and snail shells.

[39] I thank Miss Joyce Allan, Conchologist of the Australian Museum, Sydney, for classifying these shell fragments.

The distribution was as follows:

Layer 1: Sections A, C, D, E, G mussel.

Layer 2: Sections A mussel and snail, B and C snail, D and E mussel, F mainly snail, little mussel.

Layer 3: Section C mussel (one piece).

Layer 4: Section B mussel, C snail, E mussel and snail.

The distribution of shell is similar to the other distributions in that there is a lower (or earlier) cluster, and then a hiatus between these and the surface layers; in addition, there is a maximum concentration near the exit of the cave in layers 1 and 2.

*Bone.* Scattered over the surface of the floor deposit were portions of the bones of more than two wallabies and one kangaroo. Presumably these had been brought in by wild dogs.

Recovered from the trench were 331 osseous specimens, including marsupial teeth, portions of marsupial jaws, lizard jaws and complete and fragmented individual bones of small or very small marsupials. These have not been intensively scrutinized as it is unlikely that any extra light would be thrown on the cave's history by a definition of their precise species. The rough survey shows that birds, fish and genus *Canis* are not included in the collection. No human skeletal remains occurred, nor the remains of any introduced (i.e. European) domesticated animal and bird. Obvious among the material were skull fragments and jaws of lizards, jaws and teeth of one opossum, jaws of several bandicoots, skeletal remains of small wallabies and one kangaroo. The pattern of distribution of the bones and teeth does not conform with that of the other material recovered from the excavation. The osseous distribution is so haphazard that a pattern scarcely exists. In layer 1 the concentration is at the front and back edges and sparse in the middle. In layer 2 concentration is again at front and back edges, but the intervening sparse area is nearer the front of the cave. In the lower two layers concentration is greatest in section 3C and tapers off uniformly to the edges.

About one-fifth of the bones show evidence of fire. A few bones occur in the upper two-thirds of the 3rd layer, so that the hiatus between an earlier and a later period is not demonstrated by the skeletal remains. The only explanation that suggests itself is that during the hiatus period some food consumption took place in the cave unassociated with other activities.

*Implements.* Compared with other cave and rock shelter sites examined archæologically in Australia, the percentage of stone artifacts in this cave is high. One hundred and thirty-five stone implements were obtained from the trench and also about 900 chips and rejected pieces varying in size from 5·0 mm. to 6·0 cms. in length. In addition, 102 implements lying in very obvious view on the surface of the deposit, but away from the site of the trench, were collected.

The larger implements are concentrated in layer 1, but some occur in layer 2, and a very few in layer 4; among these last were two blades resting on the rock floor in section 4B. The smaller implements and the unused chips are densely

concentrated in sections B, C and D of layer 2 ; chips are also concentrated in the entire depth of layer 4 to within a metre of the front wall, and also in the lower third of layer 3, mainly section C, but also tapering off in sections B and D.

The distribution of worked stone therefore is similar but a trifle more extensive than the distribution of charcoal and ash, ochre and shells. The hiatus is again seen in the upper two-thirds of layer 3. The trench excavation seems to indicate an earlier stone working period which has left *in situ* many chips, but few implements ; and a later stone working period from which remain the chips and many implements too. It might be suggested that in the earlier period the majority of the finished products were used or traded out ; that the later period saw a falling off in demand of both use and trade for the finished products.

Since the only evidence of stratification is the existence of a relatively sterile layer in the upper 12 cms. of layer 3, the knapped material is described in two groups, group I being the implements from layers 1 and 2 combined, group II the implements from layers 3 and 4. Group I includes 227 implements. Of these 125 were obtained from layers 1 and 2 and 102 from the surface of the deposit away from the site of the trench. Group II includes 10 implements.

The extreme contrast numerically would reasonably lead to the suspicion that the 10 implements in Group II had originally belonged to Group I and had got into a lower stratum by spurious means. Refuting this, however, is the association of some 200 chips with the 10 implements in the lower stratum and their separation from the upper group by the intervening sterile 12 cms.

There are no data to indicate the rate of accumulation of floor deposits, nor are there any indications that the rate varied at different time periods. The maximum thickness of the lower implement and chip bearing stratum is 22 cms., and of the upper stratum 10 cms. The volume of the lower stratum excavated is approximately 0·26 cubic metre and of the upper stratum 0·32 cubic metre. It does seem therefore that the population and/or the industry in the cave was much smaller in the earlier period than in the later period ; and since vertical accumulation is probably a more reliable guide to time duration than is volume, the earlier industry would appear to have functioned in the cave for a longer period than did the later industry.

Group I contains 83 scrapers, 69 points, 20 microliths which include scrapers, burins and knives, 11 knives, 5 tula type adzes, 3 burins, 3 edge-ground axes, 3 blocks, 1 core, 1 hammer-stone and 28 portions of trimmed blades which have been broken in use or in manufacture. Group II includes 7 scrapers, 2 points, 1 microlithic scraper. Of the collected 237 implements 83·5% are made of quartzite, 12·6% of chert, 3·8% of jasper, one implement (0·4%) of chalcedony and one (0·4%) of some fine-grained volcanic rock, probably trachyte or rhyolite (the tula adze-flake).

Of the chips and reject material, the proportions of quartzite, chert and jasper are approximately similar, but the percentage of chalcedony is higher (about 2%), and in addition there are six chips of basalt (one broken trimmed blade was of basalt), one piece of conglomerate, one lump of quartz and four chips of quartz. The fine

quality red and brown quartzite from which some of the small Pirri and biface points are made is also demonstrated in the chips, in fact some of the fragments show precisely the same grain pattern seen in the points.

One biface point (Plate II, fig. 45) made of buff coloured quartzite has no counterpart in the chip material recovered. It would seem, therefore, that the tula adze flake (Plate I, fig. 6, left) and the biface point (Plate II, fig. 45) are the only two implements which might have been traded into the cave, rather than manufactured at the site.

There is no evidence to indicate whether the raw material, chalcedony, etc., was traded in or obtained locally. There occurs one solitary blade of basalt, broken, and only six chips of basalt; whether the chips are the result of attempting to re-point an in-traded basalt blade or whether they are the result of attempting to fashion a solitary piece of basalt cannot be determined. No basalt formation was observed anywhere in the neighbourhood and recorded basalt country lies much further to the west.

The findings at the Tandandjal cave differ considerably from those of the Wardaman tribe at Willeroo and Delamere 120 miles to the south-south-west. Davidson found few adze points and scrapers, while quartzite spearheads constituted 90% of all specimens. Davidson[40] in fact comments on the scarcity of scrapers in north Australia as one of " the most striking features " (p. 159) and instances their absence from the shell heaps investigated by Warner on the northern coast. Here at Tandandjal the picture is completely reversed, in that scrapers occupy first place in the industry; also the total percentage of quartzite for all implements is only 83·5%.

Mr. F. D. McCarthy, Ethnologist at the Australian Museum, has drawn my attention to the fact that this scraper industry at Tandandjal differs from other recorded Australian industries in that it is based on quartzite Leilira type blades; and also that the distal ends have a predominantly straight or concave working edge frequently associated with noses.

These scrapers show a continuous range of variation from small to large; although straight working edges predominate, convex and concave occur, together with trimmed noses. Morphologically the scrapers demonstrate one side, one side and one end, two sides, two sides and one end, one end, two ends, discoidal, concave and nosed as trimmed working edges. The double side and end type constitutes 42% of the total. Of the types having one side, or one side and one end as a working edge, the working edge is on the left lateral margin of the outer face in 80% and on the right lateral margin in 20%. An almost identical state of affairs occurs with the pointed blades (*vide infra*) where among the blades not fully trimmed on both margins or faces the predominance of left marginal over right marginal trimming is again 80% to 20%. It is suggested therefore that no definitive type occurs; that

[40] D. S. Davidson, 1935, " Archæological Problems of Northern Australia," *Journal of the Royal Anthropological Institute*, Vol. 65, pp. 145-183; especially p. 152.

the predominance of the double side and end type and of the straight working edge is fortuitous and that the range of industry to either side of this mean dominance is continuous and random.

Statistically the only significant figure is the absolute excess of left marginal trimming over right in those implements not fully trimmed on both margins. The percentages are not unlike those for the distribution of right-handed and left-handed people in most populations. Mr. McCarthy, however, thinks the morphological departure of these scrapers from that of other Australian industries is due to some local functional response.[41]

In the pointed implements the continuous range of variation is even more marked than in the scrapers. The range is from small to large and from untrimmed edges to full face trimming. Incidentally, face trimming occurs also on a few of the scrapers. Marginal trimming ranges from light to heavy edge trimming of part of one margin, all of one margin, all one margin and part of the other, and the entirety of both margins and the butt. Morphological range includes long narrow blades, broad flakes, convex, keeled, triangular and lenticular blades. The pirrioid form of the small points is duplicated completely or partially in three or four of the large blades. One so-called " type " merges continuously into another, and to demarcate boundaries between them seems artificial.

It has already been noted that the Pirris and the biface points with the exception of that shown in Plate II, fig. 45, were probably manufactured at the cave. The recovery from one workshop of such a complete range of points showing continuous overlapping of so-called " types " is possibly of greater significance than the discovery here at Tandandjal for the first time in the Northern Territory of burins and of the northernmost location so far of the Tula whether by manufacture locally or by trade ; (the Tula adze flake was recorded by Davidson as a semi-discoidal scraper among the Wardaman 120 miles to the south-south-west).[42]

Three biface coroid edge-ground axes and portion of another one were found on the surface of the cave deposit, none occurred in the trench. This agrees with the findings of Davidson at Delamere and Willeroo, and McCarthy[43] at Oenpelli. Apparently the edge-ground axe is a late intruder into the region.

The occurrence of two biface points in company with quartzite blades in the deeper stratum and the evidence for local manufacture rather than for trade suggests that the earliest craftsmen in the cave arrived there possessing a knowledge equal in scope to that of the later inhabitants. Furthermore, the priority of the Leilira blade to the biface point suggested by some authors is not confirmed ; on the contrary, they are here contemporary, and numerically the Leilira has preference. On the other hand, the profusion of variation and the completeness of the series from the

[41] See appendix by F. D. McCarthy for a complete description of the implements. I thank him for this and for all the help he has given.

[42] D. S. Davidson, *op. cit.*, p. 163, Fig. 13.

[43] F. D. McCarthy, personal communication.

upper stratum indicates a more fully matured industry for the later occupants. The later inhabitants employed the basic patterns of their predecessors, and, as a result of cumulative experience, have produced a variety in the original patterns extending to the present complete range.

## Summary and Conclusions

The geography, site and circumstance of discovery of an aboriginal cave 58 miles east of Katherine are described.

Three sets of circles of stone are linked by lines of stones, and these continue from the south-west up to the cave ; the margin of the cave entrance is bounded by an artificial row of stones and on the cave roof is a cairn of stones. The literature relating to such artificial arrangements of stones in the Kimberleys is examined.

The cave has a gallery of paintings on its inner wall and outside the cave is another gallery of paintings on a vertical rock face above the entrance.

The paintings of the inner gallery are in two groups. One, regarded as the oldest, depicts natural species and possibly represents the original stratum of cults in the region.

The other group, regarded as later, depicts a unique humanoid figure, a snake and a wallaby. A fusion of Galaru, Wandjina and Garirinja cults penetrating eastward from the Kimberleys could explain this group. It is also regarded as contemporary with the artificial arrangements of stones, and so presenting in the one site a fused complex of traits which remain discrete in the Kimberleys.

A geometrical painting on a projection from the inner wall seems to belong to approximately the same time period or a little later and suggests intrusion from the south.

The outer gallery shows a unique series of paintings of more recent age ; they include chiroptera, some in the hanging position and some standing, two men drawn in an inverted position, and a shark, although the site is 200 miles from the sea. They are regarded as derived from northern traditions, earlier but basically similar to cults operative at the present time 100 miles to the east.

The study of these paintings and the living culture mentioned suggests that at least some aboriginal paintings are to be regarded as a re-presentation of the creative myth and as memorials to the mythological past. They are concerned with linking the past with the present rather than with increase rites.

The cave floor deposit was excavated and sieved in sectioned layers, and all recovered material was separately labelled. Some evidence of stratification was found. Analysis of the material recovered revealed close correlation in the distribution of charcoal, ochre, shells of freshwater mussel and land snail, stone implements and chips. This distribution showed a distinct hiatus between an earlier and a later period of human occupation of the cave, and so confirmed the separation of the paintings into an earlier set and a later set. Furthermore the distribution of colour in the trench accorded quite well with the paintings of the inner and outer galleries.

Distribution of osseous material did not correlate with the other material recovered. Presumably some food consumption unassociated with other activities took place in or near the cave during the hiatus period. No human skeletal remains were found.

The proportion of stone artifacts to total deposit was extremely high, and the distribution of finished implements, rejects and chips suggests that in the earlier period the majority of the completed implements were used or traded out, while in the later period the demand for either use or trade of the finished products decreased.

The chips clearly indicate that with the possible exception of two implements all the artifacts recovered were manufactured in the cave. Evidence was insufficient to determine whether the raw material was traded in or obtained locally. Scrapers are predominant in the industry, but pointed implements form a high proportion also. The most striking feature of the industry was the completeness of range of both scrapers and points. There were no gaps between so-called " types," instead continuous overlapping occurred from one " type " into another. Such a continuous series has not previously been recovered.

Biface points and quartzite blades were contemporary in both the earlier and the later strata—a finding which is also at variance with previous literature. Apparently the earlier and later inhabitants were equally equipped in technical knowledge. Burins in the deposit represent the first discovery of these from the Northern Territory. The Tula adze flakes found record the northernmost site from which they have so far been recovered and suggest intrusion from the south. Correlation between these and the geometrical painting is not very satisfactory, since the Tulas came from the upper stratum, while the geometrical painting seems to belong to the earlier period. Three edge-ground axes appear to be the most recent addition to the cave.

The history of the cave presents several phases :

(1) Occupation by a people whose traditions were equivalent to the original or lowest stratum of cults like those unravelled by Capell in the region of Cambridge Gulf some 300 miles to the west.

(2) Occupation by a people whose ritual pattern was the result of a fused complex of traits and cults ; these had diffused in a semi-circle from south-east of the Calder River north to the Sale and the Glenelg, north-east to the headwaters of the Prince Regent and then continued east. The fusion indicates Galaru cult imposed on Wandjina beliefs and, in turn, overlaid by modifications such as Garirindja ; also Talu rites were combined with these so that Kimberley influence was at that time a dominant force moving eastward.

(3) As a late contemporary with (2), some influence from the central or southern part of the continent appears to have reached the cave.

These three phases can be grouped together broadly as an earlier period, when a comparatively small population occupied the cave for a lengthy period of time. The technical equipment of some or all of these occupants was equal to that of later comers.

(4) A hiatus occurred in the occupation of the cave at least as far as stone industry and ceremonial activity are concerned.

(5) Occupation by a larger number of people who functioned there until perhaps a hundred years ago. Their total period of occupancy appears to have been shorter than the length of time for which the earlier people occupied the cave. The traditions of these later people were essentially northern in origin (outer gallery paintings), but some southern contact was occurring as well (Tula adze).

From the shallowness of the deposit, the total occupancy does not suggest great antiquity.

The cave itself can be regarded as a workshop, a painting gallery and a dreaming centre with a mythological background. It has registered the arrival of a variety of cults and possibly also of people impinging upon it from 500 miles west, from 300 miles south, and from 200 miles north.

These findings correlate rather well with the results of other investigations in the Northern Territory.

Elkin[44] points out that the picture of the social organization is " one of change, diffusion, complexity and some perplexity, as well as variation according to regions." Capell (1939) elucidated a series of strata of language and religious beliefs in the Northern Kimberleys and hinted that these had penetrated eastward right into Arnhem Land. His view is based on the " similarity of the essential grammatical features " in the languages. The studies by R. M. and C. H. Berndt (1950) show that the great song cycles have migrated from the western shores of the Gulf of Carpentaria westward and southward down to the south-western regions of Arnhem Land. Circumcision and subincision have diffused into the southern margins of the region from the south.

The picture in the northern parts is the reverse of static—it stresses change and variation in the cultural sphere, and also to some extent in the material sphere. Studies in the physical anthropology of the aborigines of the region can scarcely be valid without an awareness of the complexity of change that has occurred during the diffusion of cultural traits among them, and in some cases undoubtedly in the migrations of the tribesmen as well.

The spread of leprosy shows that the movements of aborigines over vast areas of country are still going on. This disease was not endemic among them before white settlement, but is now an advancing infection. Detected first among the Alligator River tribes in 1890, it had spread to the Port Essington tribe to the north in ten years (Cook[45]). Cook also instances the fact that between the endemic areas of the Alligator and the lower Roper River leprosy occurs at all the principal points

[44] A. P. Elkin, " The Complexity of Social Organisation in Arnhem Land," p. 18, *Southwestern Journal of Anthropology*, Vol. VI, No. 1, Albuquerque 1950.

[45] C. Cook, " The Epidemiology of Leprosy in Australia," *Commonwealth Department of Health*, No. 38, 1927, pp. 33, 42.

on the route—Pine Creek, Katherine, Marranboy, Mataranka, Hodgson Downs Urapunga, Roper Valley and Roper Mission.

We do not know how long ago the wanderings of aborigines and the movements of cults began, but that they occurred in an earlier period of time and have continued to the present is seen from the examination of the cave at Tandandjal.[46]

N. W. G. MACINTOSH.

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## STONE IMPLEMENTS FROM TANDANDJAL CAVE—AN APPENDIX

By F. D. McCarthy

THE implements are described in two groups, according to the distribution of the knapped material in the deposit, shown in Figure 2.

Group 1: Surface and layers 1 to 2.

*Core Implements.*

A concavo-convex pebble of brown quartzite, 5×5×1·8 cm. in size, trimmed on three margins, each of which bears a shallow concave 1 cm. wide.

*Knapped Implements.*

*Blocks.* The three specimens comprise an elongate oval flat-topped block of brown quartzite, 7 cm. long, with steep-faced working edges on the lateral margins, and the distal end in the form of a convex nose; a triangular block of grey chert, 6·5 cm. long, trimmed along its wide distal end, and two smaller blocks of similar shape, one 3·5 cm. long with a trimmed distal end, and one 3·8 cm. long trimmed on both lateral margins and end with a convex nose, trimmed on the inner face, on one corner of the butt.

*Normal Flakes and Blades.*

*Knives.* A series of eight blades, some of which are pointed, made of white, pink, buff, red and brown quartzites, and of brown chert, from 4·5 to 9 cm. long, and three thin blades of red jasper and brown chert from 3·5 to 5·5 cm. long. One or both lateral margins, and sometimes the distal end, bear primary scale scars. These cutting margins vary from a natural concave to straight and convex edges. In addition, the untrimmed *Leilira* blades, and many of the blades in the various scraper types, were also used as knives.

*Scrapers.*

*Side.* Three blades and two flakes of red, brown and white quartzites, and of brown chert, from 3·5 to 5·8 cm. long. The working edges vary from straight to convex.

*Double Side.* Six keeled blades, made of white to pink quartzites, from 5 to 7 cm. long, and one red chert blade 5 cm. long. Three are reverse-trimmed on opposite margins, one has a one notched lateral margin, one has a concave 2 cm. long and 5 mm. deep, and one has a concave 1 cm. wide and 3 mm. deep at one end of one lateral margin.

*Side and End* (Plate I, Fig. 1). These are all blades, and ten of them are keeled. Two are made of pink chert, one of brown quartzite, and twelve of pink to white quartzites. They are from 3·5 to 7·5 cm. long. Most of the working edges on the lateral margins are straight, although they range from concave to convex, but there are more concave working edges on the distal end than other kinds. Seven have a prominent nose on the corner of the distal end and trimmed lateral margin, and of these one has a shallow concave and oblique distal end 2·4 cm. long adjoining the nose, one has a concave 1 cm. wide and 2 mm. deep at the end of the trimmed lateral

margin, and one has a concave 1 cm. wide and 3 mm. deep and a rounded nose 1 cm. wide and 4 mm. long; one has a concave 1 cm. wide and 2 mm. deep at the distal end, and another concave 2·5 cm. wide and 2 mm. deep on the other side of the nose; on one the prominent nose is 7 mm. long and wide, and another one is step-trimmed on one straight lateral margin with a concave 4 cm. long and 5 mm. deep at its distal end bounded by a triangular nose at each end with a small concave on the other side of the nose. One has two shallow concaves each 5 mm. wide on the distal end. A narrow keeled chert blade 5 cm. long, which is step-trimmed along the lateral margin, has a shallow concave 8 mm. wide across the distal end. One has a shallow concave lateral margin and distal end. One has a very small convex nose between two concaves on the distal end, and one has a long shallow concave lateral margin.

*Double Side and End* (Plate I, Fig. 2). This large series consists of blades from 3·3 to 8·6 cm. long, with one 11 cm., and from 2·4 to 4 cm. wide. Nine are end portions only. Twenty-seven of them are made of pink to white quartzite, three of dark red and two of brown quartzites, and two of brown chert. Seventeen are keeled, the remainder are from flat to convex on the outer face, and one (Plate I, Fig. 2, extreme right) bears shallow flake-scars of a similar kind to the *pirri* points all over this surface. Most of these implements are well used on the working edges, and the majority of the lateral margins are convex, although sixteen are straight, and several are either a long shallow concave or a natural concavo-convex edge unaltered by use or trimming. On the distal end the working edge is straight on six, convex on ten, concave on seventeen, and nosed on two. One or two concaves are present on the lateral margins of seven, and they range from 2 to 3 cm. long and up to 3 mm. deep, but the concave working edge on the distal end ranges from 7 mm. to 3 cm. long and up to 5 mm. deep. The nose is present on the distal end only, and not on the lateral margins; it is on the end of two, on one corner of ten thus joining the lateral margin and end, and on both corners of four. The nose ranges in size from 5 mm. long and 3 mm. wide to 1 cm. wide and long. There is a concave on each side of seven of these corner noses, six of which are triangular and the remainder rounded or convex.

Various combinations of concaves and noses occur. One 8 cm. long is reverse-trimmed on the opposite lateral margins, and has an oblique distal end notched by a series of four small and used concaves. One 3·7 cm. long has trimmed steep-faced lateral margins, and three small rounded noses separated by small concaves on the distal end, one of which is 5 mm. wide and 3 mm. long and juts out prominently on the corner. One 8·6 cm. long has the distal end in the form of a convex nose 1 cm. wide between two concaves. Two have two concaves on the distal end. One 7 cm. long has a concave distal end 2 cm. wide and 3 mm. deep, with a pointed nose 8 mm. wide and 7 mm. long on one corner, and a rounded nose on the other corner. Two have notched lateral margins.

Two blades (Plate I, Fig. 2, first two on left), one of white and one of pale brown quartzite, 8 and 8·8 cm. long, have a neatly trimmed convex distal end, and are of the "woman's-knife" type described by Spencer and Gillen (*Northern Tribes of Central Australia*, 1904, pp. 649-50, Figs. 187–189).

There is one large quartzite blade, convex on the outer face, 9×7×1·5 cm. in size, with lightly used edges.

*End.* Four of the five blades are keeled, and there is one flake, ranging from 4·5 to 7 cm. long. Three are made of white quartzite, two of dark red quartzite, and one of brown chert. The working edge is straight on four, convex on one and concave on one. One 5 cm. long has a small convex nose between two small concaves, and one 6·5 cm. long has two small concaves on the working edge.

A double-end scraper (Plate I, Fig. 3) is a white quartzite keeled blade 5·5 cm long, with one oblique shallow concave and one convex working edges, the latter bearing two noses between three small concaves each about 8 mm. long. It is also lightly used along both lateral margins, one on the inner face.

*Discoidal.* The two specimens comprise an oval white quartzite blade (Plate I, Fig. 4), 3·7 cm. long, lacking portion of one end, with notched convex lateral margins, and two small rounded noses on one end, separated by concaves, the bigger nose, 7 mm. wide and 3 mm. long, jutting out prominently on the corner; a keeled and narrow elongate oval jasper blade 3·6 cm. long, humped at one end, with a small concave and a small convex nose on the thick end.

*Concave and Nosed* (Plate I, Fig. 5). This group consists of implements on which the concave and/or nose is the principal working feature. There are eleven blades and two flakes, six being made of white to red quartzite, two of dark red quartzite, and six of brown chert. They are from 3·5 to 7 cm. long. They bear from one to four concaves, some of which are step-trimmed, from 1 to 3 cm. wide and from 2 to 7 mm. deep. There are from one to three noses on a specimen, six have them on one or both corners of the distal end, and two have them along this edge. Noses may be all rounded or convex on the one specimen, or one may be rounded and another triangular and pointed on the one specimen. On three the pointed nose is sharp enough for use as a piercer.

Amongst these specimens one thick blade 7 cm. long has a deep concave on each lateral margin and the distal end, from 2 to 3 cm. wide and 2 to 3 mm. deep, and a round nose at each corner of the distal end. One blade 7 cm. long has a concave 2 cm. wide and 5 mm. deep, and a triangular nose on each corner, on the distal end. A flat blade 4·4 cm. long has a long prominent and narrow convex nose on a corner between two concave working edges. A blade 4·5 cm. long and 5·5 cm. wide worked down from a longer piece has one trimmed straight lateral margin, a step-trimmed oblique distal end bearing several shallow concaves, a trimmed concave lateral margin 3 cm. wide and 4 mm. deep, and a prominent long rounded nose 2·2 cm. long and wide on one corner. One which has a deep heavily worked concave 1·5 cm. wide and 4 mm. deep at the top of the outer face is probably portion of the trimmed edge of a core or block.

In addition thirty-four other implements bear concaves ranging from 1 to 4 cm. wide and up to 5 mm. deep, and twenty-six bear noses up to 1 cm. long and wide. Concaves and noses are usually associated and concaves are more frequently isolated on a specimen than are the noses.

*Adze-Flakes.*

*Tula.* A thick oval blade (Plate VII, Fig. 6, left), 6·5×5×2 cm. in size, with a flat and plain high-angled striking-platform, convex on outer and inner faces, with step-trimmed lateral margins and end, all convex. It is made of a very fine grained volcanic rock, either trachyte or rhyolite, weathered to a grey patination on the surface. A red chert flake, semi-discoidal in shape, 4 cm. long, with steep-faced margins lightly trimmed except for a concave 1 cm. wide and 2 mm. deep.

*Tula Adze-slug* (Plate I, Fig. 6, right). The three examples comprise one of chert, 2·3 cm. wide across the butt, with a slightly concave working edge, and only half of its striking-platform present; a red jasper slug 3·5 cm. long, with a shallow concave in the middle of its convex working edge, and a good butt; a thick mottled grey chalcedony slug, with a good butt, and a concave 1·5 cm. wide and 2 mm. deep on one lateral margin, then a round nose 1 cm. wide and 5 mm. long on the corner, and a concave 1·5 cm. wide and 2 mm. deep on the distal end.

*Burins* (Plate I, Fig. 7, left). One is a thick keeled blade of white quartzite, 7·8 cm. long, crudely trimmed on one lateral margin, which has had three spalls, due to having been re-struck twice, removed on one lateral margin at the butt end. It has a plain platform, with a working edge 9 mm. wide which shows signs of use on the upper edge of the spall scar. One of bec-de-flute type is a dark red quartzite blade (Plate I, Fig. 7, right), 4·4 cm. long, partially trimmed on both lateral margins, with a spall 3 mm. wide opposed to a flat but steeply angled platform, the working edge being in the middle of the distal end. One is a brown and pink chert blade 3·5 cm. long, with a median keel at the end of which is the working edge 3 mm. wide in the middle of the distal end ; it is opposed to a concave scaled platform at a steep angle, and at the other end is a trimmed working edge on the inner face.

*Uniface Points and Blades.*

The varieties of trimmed points, most of which are symmetrical in type, are closely interrelated, and although it has been possible to divide them into some definite types, it has been found extremely difficult to separate the *pirri* from the trimmed *Leilira* blade. A long series of quartzite points from 5·5 to 11 cm. long bears a varying amount of shaping from light edge trimming to full uniface treatment of the *pirri* kind, and there is a complete gradation in size from the smallest to the largest point (Plate II) ; all of this series appears to be percussion trimmed.

(1) *Trimmed on One Lateral Margin* (Plate I, Fig. 8 ; Plate II, Figs. 9–13). Four are fully trimmed and three at the distal end only. Five are keeled and two are convex on the outer face. One made of dark red quartzite lacks its tip. Six made of white, pink or buff coloured quartzites are from 5·5 to 9 cm. long. The longest example (Plate II, Fig. 9) being a broad thick one triangular in shape, and its point is emphasized by a concave 1 cm. wide and 2 mm. deep beside it.

(2) *Bi-marginal, or Trimmed on Both Lateral Margins* (Plate I, Fig. 7, and Plate II, Figs. 14–20). Seven are fully trimmed on one lateral margin and partly, adjoining the point, on the other margin. Four are made of white quartzite, from 8·8 to a broad one 11 cm. long, and a narrow one 13·3 cm. long ; one of brown quartzite is 5·2 cm. long, and two of dark red quartzite are 6·7 and 8 cm. long. All are keeled on the outer face. Two have small concaves on one or both sides of the point.

Amongst the points fully trimmed on both lateral margins (Plate II, Figs. 21–39), which form the largest group, twenty are made of white to pink, two of brown, and one of dark red quartzites. Nine are from 4·5 to 6·5 cm. long and from 2·5 to 3·5 cm. wide ; ten are from 7·5 to 8·8 cm. long and from 3 to 3·5 cm. wide ; four are from 9 to 10 (lacking tip) long and from 2·5 to 4 cm. wide. In thickness they are from 7 mm. to 2·2 cm. Ten are keeled and the balance are either convex or bear a longitudinal median flake-scar on the outer face. The trimming is edge only, the majority being steep-faced, but six have a low-angled outer face. One 9·3 cm. long is a keeled point with its butt trimmed to a neat convex shape commonly seen on the *pirri*. A thin point 8·5 cm. long is lenticular in shape (Fig. 25), all but a narrow remnant in the middle of the butt having been trimmed away. A small concave is present beside the point on one. On the remainder the trimming is steep-faced, irregular and somewhat crude, and follows the natural shape of the margins ; eight points have both margins convex ; seven have a concave and a convex margin ; and three show a concave towards the point (a *pirri* character) on both lateral margins. The trimming, also, extends to a median ridge up to 0·5 cm. from the point on practically all of them. All but three are narrower at the butt than above it, giving them a natural leaf-shape. The lateral margins are notched

on nine and smoothed by the removal of spurs on eight. On three there is a small concave 1 to 2 cm. long and up to 3 mm. deep, on both sides of the point. One has a concave 1·3 cm. wide and 3 mm. deep near the butt on one lateral margin. One long thin blade (Plate II, Fig. 15), 13·5 cm. long, and a short thick point (Plate II, Fig. 37) 5·5 cm. long with a re-sharpened point, both of which bear a patch of black gum-cement at the butt end of their outer face, have presumably been used as spear-points.

There are, in addition, 14 butt ends, 11 point ends, and 3 middle portions of similar points, indicating a high percentage of breakages either in the making or in use. Two are made of chert, the remainder of quartzite. One has a nose between two concaves each 1 cm. wide on the corner of the distal end, the butt of one is trimmed to a tanged shape, and one has a concave 1 cm. wide and 2 mm. deep on one lateral margin. The middle portion, 6 cm. long, of one curved keeled blade is narrow and thin and has both lateral margins heavily worked.

The two finest specimens (Plate I, Fig. 10, and Plate II, Figs. 22 and 24) in this group are both large well made points. One (Plate II, Fig. 22) is 9·3×3·4×1·5 cm. in size, and bears broad irregular flake-scars right along both lateral margins of its convex outer face. The other one (Fig. 24) is 8·5×3·5×2 cm. in size, being thick in proportion to its width and length, and bears comparatively big flake-scars, irregularly disposed, at right-angles to the edges, and extending to the convex top which consists of several longitudinal flake-scars worked away at both ends; there is a large shallow concave in the middle of each lateral margin, in one of which is a small convex nose. These two points have plain high-angled butts, and they are perhaps better regarded as large *pirri* than as *Leilira* blades.

*Pirri* (Plate I, Fig. 11). Three small uniface points, made of pink and red quartzites, are neatly trimmed all over the outer face. The flake-scars are irregularly disposed on one, which is 3·5×2·5×1 cm. in size, and has an irregular keel; they are roughly parallel on one, 3·5×1·9 cm.×9 mm., which has a median ridge on its outer face, is notched along the lateral margins, its point is set between an unused concave and a small convex nose on one side and three shallow concaves by two small noses on the other side, and its butt is almost trimmed away. The flake-scars are also irregularly disposed on one 4×2·4×1 cm. in size, and they terminate in a step along one side between the keel and the edge; it is the only one of the three with a trimmed butt which is convex in shape. The point end of two well-made jasper *pirri* were found in sections 2A and 2E (Plate II, Figs. 43 and 44).

*Biface Points* (Plate I, Fig. 12, and Plate II, Figs. 45–50). Two are made of pink, and one each of red, orange and buff quartzites, and one of red jasper. One is the point end only. Among the others two are keeled on one face and slightly convex on the other face; three are slightly convex on both faces. Three are leaf-shaped with a convex butt, and two are triangular with a straight butt, one of which has a cortex striking-platform. The flake-scars are irregularly disposed on four but are roughly parallel along both lateral margins of one. The jasper point is only partially trimmed on both faces. They are from 3 to 6 cm. long, 1·8 to 2·5 cm. wide and up to 1 cm. thick.

*Untrimmed Leilira Blades* (Plate I, Fig. 13, and Plate II, Figs. 1–8). Made of white, pink, red, yellow and brown quartzites, they range from 4 cm., 5 cm., and 7–15 cm. in length (tip lacking on longest example) and from 2 to 4 cm. wide. A large number of these untrimmed blades occurred on the surface of the cave floor.

*Edge-ground Axes* (Plate I, Fig. 14).

Three oval biface coroid axes, 8·5 to 8·8 cm. long, 2·5 to 3 cm. thick, formed by a cleavage face, which is roughly trimmed around the margins, on both sides.

One has two ground facets, but on the other two, one facet has been removed during use. The butt of one has been used for percussive purposes. There is also an oval flake 6 cm. long struck off the lateral margin of an axe. All specimens were found on the surface.

*Hammerstone.*

A red sandstone hammerstone, rounded in shape, 10 cm. in diameter and 7 cm. thick, weighing 2 lb., has a broad, slightly convex and pitted working face on one side.

*Microlithic Knives and Scrapers* (Plate I, Fig. 15).

*Knives.* Four are made of chert and two of red jasper, and five of them are blades. They are from 2 to 2·8 cm. long, and bear primary scale-scars or minute trimming on the lateral margins or end.

*Scrapers.—Side and End.* A red quartzite flake 2·6 cm. long, lightly serrated on the working edges, and inverse-trimmed on the latter.

*Double Side and End.* A white quartzite convex blade, 3 cm. long notched along both lateral margins and end, with a prominent rounded nose 4 mm. long and wide on one corner. A red jasper flake 2 cm. long and 2·5 cm. wide, and a blade 2·5 cm. long, both with convex working edge on the lateral margins and straight on the end. A brown chert flake 3 cm. long with reverse trimming in patches along the margins.

*End.* Five blades and two flakes, six made of chert and one of red quartzite, from 1·6 to 3 cm. long. One is trimmed on both of its convex ends. One has a tiny concave 3 mm. wide, and the majority have straight working edges.

*Concave and Nosed.* A blade 2 cm. long with a concave 1·5 cm. wide and 1 mm. deep on the working edge at the distal end.

*Burin.* A triangular flake of brown chert 2·5 cm. long, with a working edge 4 mm. wide. It has been re-struck once, and the spall-scar is opposed to a flat plain platform.

Group 2: Layers 3 and 4.

*Normal Flakes and Blades.*

*Scrapers.—Side.* A pointed blade 4·2 cm. long, with a shallow concave 1 cm. wide on its working edge, and portion of a chert side scraper.

*Double Side.* Portion of one only.

*Side and End.* A pink quartzite keeled blade (Plate I, Fig. 16, top left) 7·3 cm. long, trimmed partly along one lateral margin and across the distal end, possibly a woman's knife. A pink quartzite blade 6·5 cm. long with one trimmed convex lateral margin, and a concave 2·8 cm. wide on the distal end. A keeled quartzite blade 6·3 cm. long with a trimmed convex lateral margin and a straight distal end bearing a round nose in the middle.

*Double Side and End.* A narrow keeled blade, lacking butt, 4·7 cm. long, with one convex and one straight lateral margins and a convex end.

*Point.* The trimmed blunt distal end of a dark red quartzite blade, and the point end of a brown quartzite blade trimmed on both lateral margins.

*Biface Point* (Plate I, Fig. 16, bottom left). The middle portion of a red jasper biface point, convex on both faces.

*List of Specimens*

| | *Group* 1. | *Group* 2. |
|---|---|---|
| Core implements | 1 | |
| Knapped implements: | | |
| Blocks | 3 | |
| Normal flakes and blades: | | |
| Scrapers: | | |
| Side | 5 | 2 |
| Double side | 7 | 1 |
| Side and end | 15 | 3 |
| Double side and end | 35 | 1 |
| End | 6 | |
| Discoidal | 2 | |
| Double end | 1 | |
| Concave and nosed | 12 | |
| Adze-flakes: | | |
| *Tula* type | 2 | |
| *Tula* slug | 3 | |
| Burins: | | |
| Plain platform | 2 | |
| Scaled platform | 1 | |
| Points and blades: | | |
| Uniface: | | |
| Trimmed on one margin | 7 | |
| Trimmed on two margins | 32 | |
| Portions of trimmed points and blades | 28 | |
| Uniface (*Pirri*) | 5 | |
| Biface | 6 | 2 |
| Untrimmed *Leilira* | 19 | |
| Knives | 11 | |
| Microliths: | | |
| Scrapers: | | |
| Side and end | 1 | 1 |
| Double side and end | 4 | |
| End | 7 | |
| Concave and nosed | 1 | |
| Burin: Plain platform | 1 | |
| Knives | 6 | |
| Edge-ground axes: Biface coroid | 3 | |
| Hammerstone | 1 | |

The chief products of this workshop were quartzite blades from which the points and various scraper types were made. No nuclei were collected. The industry differs in one very important respect from other described Australian industries, including that found by D. S. Davidson (*Journal Royal Anthropological Institute*, Vol. LXV, pp. 145–84, figs. 3, pls. VIII–X, 1935) in the Wardaman caves at Delamere and Willeroo, some 120 hundred miles to the south-west of Tandandjal, in its use of the quartzite pointed blades of *Leilira* type as scrapers and probably as hafted adze-flakes. Also, presumably they were used as knives. An unusual feature of these implements is the predominantly straight or concave working-edges on the distal end of the scrapers where they are often associated with a triangular or rounded nose on one or both corners. Otherwise, the industry possesses the

characteristic assemblage of straight, convex and concave working edges, and of trimmed noses shown to exist in south-eastern Australian industries on the south coast of New South Wales (F. D. McCarthy, *Records of the Australian Museum*, Vol. XXI, pp. 127–153, figs. 103, 1943), Bathurst (McCarthy, *op. cit.*, pp. 199–209, figs. 48, 1943) and Singleton, New South Wales (McCarthy and Davidson, *op cit.*, pp. 210–30, fig. 135, 1943), north coast of New South Wales (McCarthy, *op. cit.*, pp. 411–30, figs. 22, 1946), Lapstone Creek, New South Wales (McCarthy, *op. cit.*, Vol. XXII, pp. 1–34, figs. 92, pls. I-IV, 1947), Woakwine Ranges, South Australia (T. D. Campbell and H. V. V. Noone, *Records of the South Australian Museum*, Vol. VII, pp. 371–96, figs. 157, 1943), and York Peninsula (Campbell and Walsh, *Mankind*, Vol. II, pp. 334–40, 1947). The straight working edges at Tandandjal, however, differ markedly from the industries in far western New South Wales (C. C. Towle, *Proceedings of the Royal Society of N.S.W.*, Vol. LXVIII, pp. 117–43, figs. 7, pls. I-VI, 1935), where the convex working edge is absolutely predominant on the quartzite and chert blades among which the *Leilira*-type does not occur. It is difficult to account for such a variation because there could have been very little difference in the function of these blade implements in the two areas but it obviously differed sufficiently to produce the variation in working edges. At Tandandjal the concave working edges range from 3 mm. to 3 cm. in width and up to 8 mm. in depth and are thus suitable for working adze, spear and club shafts, and the shafts of some ceremonial objects. The site represents the northernmost point yet recorded for the *Tula* adze-flake and slug, the former having been found also by Davidson (*op. cit.*, p. 163, fig. 13), and burins are recorded for the first time in northern Australia.

*Uses.* No records of the uses of these implements were obtained at Tandandjal, but Davidson (*op. cit.*, pp. 158–60, fig. 15) stated that many of the trimmed (uniface) points were mounted as adze-points in gum-cement on a special handle, and used by the Wardaman as a knife and chisel to peel bark, scrape the surfaces of wooden weapons, hollow out food trays, and to carve the designs on bullroarers and *tjuringa*. He did not see the broad-edged scrapers in use but the Wardaman natives believed them to have been hafted for adze use (*op. cit.*, pp. 163–4). The quartzite-pointed blades from 2 to 6 inches long are still used by the Wardaman (and throughout Arnhem Land and the adjacent Northern Territory) as spear-heads ; most of them are untrimmed and they are occasionally used as scrapers and knives (*op. cit.*, pp. 166–68). The biface points traded from the west are still used as spear-heads (*op. cit.*, pp. 168).

*Technique.* The technical details of form, and the high-angled plain and flat striking-platforms, of the quartzite blades, from which many kinds of implements were made at this site, agree with the description of *Leilira* blades given by Spencer and Gillen (*Northern Tribes of Central Australia*, 1904, pp. 640–56, figs. 177–197, and diagram A) and by Roth (*North Queensland Ethnography*, Bull. 7, 1904, Sects. 24, 34, figs. 41–46, 132, 134–41). The great majority of the striking-platforms have a high inner angle, and their range is as follows : 95–100, 1 ; 100–105, 5 ; 106–110, 11 ; 111–115, 29 ; 116–120, 20 ; 121–125, 19 ; 126–130, 14 ; 131–135, 7 ; 136–140, 0 ; 141, 1. Salient bulbs predominate in all groups, although a small minority of diffused bulbs are present. The impact spot varies in position on the blades and points and although it may be opposite a ridge on the outer face it is just as often to one side or other of it.

*Affinities.* At this site there is no evidence to suggest that either the uniface or biface points preceded the *Leilira* blade. In layer 2 a broken biface point was found in section 4E, a white quartzite blade and portion of another one came from 4B and 4D respectively. The three types were found intermixed in the surface and

in 1 and 2 layers. It appears to have been a fully developed industry in the possession of the natives who first occupied the site. The edge-ground axes were found on the surface as in the Wardaman caves (Davidson, *op. cit.*, p. 154, figs. 2–3) and as they are of similar types in both areas they appear to be a comparatively late acquisition in this general region.

Compared with the Devon Downs cultures (H. M. Hale and N. B. Tindale, *Records of the South Australian Museum*, Vol. IV, pp. 145–218, figs. 249, 1930) this industry possesses Pirrian and Mudukian elements in the uniface *pirri* point and the *Tula* adze-flake, respectively, and a Murundian element in the surface finds of edge ground axes.

In the Oenpelli rock-shelter deposits excavated by the Australian and American Arnhem Land Expedition (F. M. Setzler and McCarthy, *Journal of the Washington Academy of Science*, Vol. L, pp. 1–5, figs. 3, 1950), a somewhat different industry was found. It included uniface *pirri* and biface points, and the *Leilira* blade, but the latter was not used as the basis of a scraper industry as at Tandandjal. Similar large hammerstones were used at both localities. Oenpelli traits which did not occur at Tandandjal include the *Elouera* adze-flake showing use-polished working edge, flake-fabricators and *muduk* bone points. Edge-ground axes were found on the surface in both localities.

F. D. McCarthy.

# NOTES ON SENTANI GRAMMAR

By H. K. J. Cowan

## I. Introduction

THESE notes, containing little more than preliminary information on Sentani grammar, have been collected during my stay at Hollandia. I regret to say that, although that stay has been a long one, my official duties as a civil service officer have prevented a more constant and more thorough study of the language. My enquiries have, therefore, largely been of an incidental and scattered nature. On the other hand my informants were such that information was obtained comparatively easily and quickly. One of them, although not a native of the country but an Ambonese, stationed in the district as a civil service officer, knew Malay perfectly and Dutch well; the others were native schoolteachers, who also knew Malay well. A useful medium was, therefore, not wanting, and the informants' education made them fully aware of the object of my questions and the nature of the matter in hand. I had hoped, nevertheless, to be able to amplify my notes and enquiries until a more complete grammar could be published. But I had to abandon that hope for lack of spare time. I have, therefore, decided to publish these notes as they stand.

There was, in my opinion, the less objection to that since I am convinced that it is much more useful, in a country like New Guinea, to collect as much linguistic material of an essential nature as possible during a limited period of time and covering large areas than to confine oneself to exhaustive enquiries into single languages. For these languages are numerous, but they are usually spoken by tribes small and unimportant in number; distances are enormous and communications few and difficult. A method which limits itself to thoroughly studying every single language would postpone indefinitely our necessary general knowledge of linguistic conditions in this country.

The Sentani[1] language is still an unknown language, although a few notes on it have been published in German by Dr. P. Wirz in the "*Tijdschrift voor de Indische Taal-, Land- en Volkenkunde*" of the "Koninklijk Bataviaasch Genootschap voor Kunsten en Wetenschappen" (the Royal Batavian Society of Arts and Sciences), Vol. LXI (1922), pp. 340 *sqq*. These notes, however, apart from being very incomplete and consisting chiefly of short lists of nouns, verbs, adjectives, etc., are entirely erroneous, and show only too clearly that the author failed to understand the essential characteristics of the material he handled. This is best shown by the fact that he

[1] The word "Sentani" is not used by the natives of the district themselves, but has possibly been introduced by the coastal tribes of the Humboldt-bay. The natives themselves, while having no name for the tribe as a whole, call the Sentani Lake *Bu Jaqala*, "clear water."

begins his article by stating that the Sentani language " ist verwandt mit der Sprache der Humboldtsbaai Bewohner, der sog. Skô-Küste und der Tana-mera Baai und gehört infolge dessen zu den malaio-polynesischen Sprachen." As fundamentally incorrect as this amazing initial statement are his notes on the pronouns and extremely so those on the verb. The specimen vocabularies are unreliable, the spelling of words and sounds is unsatisfactory. I regret to say that this publication is quite useless even as preliminary information.

The Sentani language is spoken by some six thousand people, inhabiting the Sentani lake district near Hollandia. Roughly three dialects can be distinguished : an Eastern dialect, chiefly including the villages of Buai (*vulgo :* Puai), Ějafo (*vulgo :* Ajapo) and Ohéi (*vulgo :* Asei) ; a Central dialect including the villages of the central area of the lake from Nědali (*vulgo :* Netaar) as far West as the western end of the strait of Fomfolo (*vulgo :* Simporo), and a Western dialect including the region to the west of this strait. Smaller differences of dialect exist between the several villages within each area. This outline is concerned with the Eastern dialect, more particularly that of Ějafo.

The Sentani language belongs to the so-called " Papuan " languages, which means that it is not Malayo-Polynesian[2]. Word-building and sentence-structure as well as verbal system and vocabulary leave no doubt whatever about this, as will be shown below.

It is closely related to the language of Nafri on the Jotefa Bay—not however to that of Tobati on the same bay, which is Melanesian—and to the language spoken around the Tanah Merah Bay from Jonsu in the east to Bukisi in the west. East of Jonsu the Ormu language is apparently Melanesian, whereas west of Bukisi the Demta language seems to be Papuan but is quite different from Sentani. In the region between the Sentani district and the Tanah Merah Bay (from Waibron Bano to Demenggong) again a different Papuan language is spoken, apparently related to the languages of Nimboran and Gresi to the south-west of the Sentani lake.

## II. Phonetics

§1. *General Remarks.*

The Sentani language is largely vocalic in that it avoids final consonants and groupings of consonants within a word. Only nasals are allowed as finals and even then only rarely. Groupings of consonants are only allowed where a nasal is immediately followed by a homorganic plosive. E.g. *Ifalĕ*, the village called Ifaar by Europeans and Indonesians ; *Nĕḍali*, vulgo : Netaar ; *fonḍé*, 3rd p. sg. fut. of *foi*, " cross, go across " ; *qangkam*, " torn to shreds," etc.

[2] My reasons for retaining the older term Malayo-Polynesian for the modern Austronesian have been set out in an earlier article. They are based on the fact that the latter term does not cover the whole area of the languages concerned : Cham and Malay are *mainland* languages and Madagascar lies far to the *west* ; on the other hand some are island languages but are *not* Austronesian (Nicobarese, the north Halmahera languages, etc.).

Several sounds are strongly influenced by a tendency towards assimilation and by a phenomenon very similar to that called *sandhi* in Sanskrit grammar, and, as in the latter language, this phenomenon appears within each word separately as well as between words in the sentence as a whole. E.g. *ĕinjĕqèisi*, " go (and) throw it away," but *ĕuněqéufiqé*, " he went (and) threw it away," the pronoun object being *-njĕ-* in one case and *-nĕ-* in the other through the influence of neighbouring consonants.[3] Thus, in the sentence, *jo*, " village " becomes *djo* in *Ohéi djo*, " the village of Ohéi " under the influence of the preceding *i*-sound.

Assimilation of vowels is apparent in *habanalé*, " I hit him " (pres.), *habĕunoqoqalé*, " I hit him, have hit him " (past), *habĕḍĕnḍé*, " I shall hit him " (fut.), etc., in which the vowel supporting the *-n-* of the pronoun object varies according to the nature of the neighbouring vowels. Assimilation of consonants is shown in *onnĕhambo*, " go ye down (and) take him home " (<*om*(*o*), imperat. 2nd p.pl. " descend ! "+*-ne-*, " him "+*hambo*, imperat. 2nd p.pl. " take home, accompany "), the original intervening *o* having first been dropped and the *m* having subsequently been assimilated to the *n* of the pronoun object.

The following sounds are found in Sentani.

§2. *Vowels.*

*a* is pronounced much like in French or like the English *a* in " father."

*é* sounds like French *é* or German *ee* in " See."

*è* represents more or less the sound written thus in French *dès*, *près* or the *e* in German " Bett " but not so short.

*ĕ* is pronounced as in French *le*, *de* or as in the English article *the* when not stressed and not followed by a vowel. When this consonant carries the accent it is intermediate between *ĕ* and *eu* in French *peu*.

*i* sounds much like French *i* in *si* and is shorter than English *ee* in *see* though much nearer to it than to the *i* in *thick*. When it carries the accent or in open monosyllables it is almost like *ee* in English *see*.

*o* is nearly always pronounced like English *o* in *bore*. Sometimes it tends to sound like *oa* in English *boat*, particularly as final, but is never quite like it.

*u* is pronounced as German *u*.

§3. *Diphthongs.*

The vowels *a*, *o*, *é*, *è* and *ĕ* may combine with *i* to form the diphthongs *ai*, *oi*, *éi*, *èi* and *ĕi*. In the same way combination with *u* forms the diphthongs *au*, *ou*, *éu*, *èu* and *ĕu*. Diphthongs are pronounced as such very distinctly ; this is particu-

[3] In verbs or verbal forms that, from their nature, already imply a *direct* object, the pronoun object very often indicates a second or *indirect* object (see §28). I have, however, throughout rendered the pronoun object by a simple " him " or " it " for reasons of brevity and convenience, and because in many cases the function of the pronoun object can be interpreted in both ways. But it should be borne in mind that very often this " him " or " it " represents a *dative* rather than an *accusative*, and that another (direct) object is then implied.

larly the case with the diphthongs *éi, èi, ĕi* and *éu, èu, ĕu* which in no way resemble the *ei* in English *neither*, German *Neid* or Dutch *zeil*, or the *eu* either in German or in French and Dutch.

§4. *Consonants.*

*b* represents a sound somewhere between *b* and *p* and varying according to differences of dialect and to the influence of *sandhi* as described above. Where it immediately follows *m* it certainly tends to sound as *p*. The same appears to be the case sometimes when a *w*-sound precedes, e.g. *habĕmpé* (*habĕmbé*), " he hits you (pl.) " ; *habajĕmpé* (*habajĕmbé*), " they hit you " ; *habĕupé* (*habĕubé*), " you two are hitting " ; *mĕwoupé* (*mĕwoubé*), " you (pl.) came," etc. Otherwise it would seem that to the native ear it is nearer to *b* than to *p*.[3a]

*ḍ*. Much the same as has been said for *b* applies *mutatis mutandis* for *ḍ*, although the best of my informants[4] insisted that this sound is nearer to *t*. In some dialects it is really given as *t*. To my ear this difference as compared with *b* is not such as to cause me to write it with *t* or *ṭ*. For the sake of uniformity I prefer *ḍ*. Similar rules of devoicing as stated for *b* preceded by *m* or *w*-sound apply for *ḍ* preceded by *n* or by an *i*-sound. It sometimes becomes *l* for reasons of *sandhi*, e.g. *ambulo*, " dead (man's) body " (<**ambu-ḍo*), cf. *ambomiè*, " dead (woman's) body."

*f*. No special comment is necessary for this consonant ; in some dialects it appears to interchange with *p, b*. It interchanges with *h* and *s* for reasons of *sandhi*, e.g. *heḍĕi*, " die ! " ; *ĕu-fĕḍĕqé*, " he went (and) died " ; *ai-sĕḍĕqé*, " they died."

*h*. No comment is necessary ; in some dialects it interchanges with *t, ḍ* and *s* ; see also *f*.

*j* sounds like *y* in English *you*. In some dialects it tends to become *dj* (English *j*) ; it does so in our dialect under certain *sandhi* influences (see above).

*q*. This consonant is one of the most difficult sounds in Sentani. I have chosen this symbol because to my ear this sound resembles the Arabic *qâf*. Often, however, it sounds strongly like Dutch or Scottish *ch* (Greek χ), sometimes even like Dutch *g* (not German or English *g*). In certain cases, very similar to those in which *b* and *ḍ* are devoiced, it is reduced to common *k*. This is certainly the case when a nasal (*ng*) or an *i*-sound precede. E.g. *qangkam*, " torn to shreds " (<**qam-qam* ?) ; *foqé*, " he crossed, went across " ; but *qaiké*, " he split in two," but again *qaikoqé*, " he split (something) " from *qai*, " split."

*l* is never quite like English *l*. It appears to approach *r* and in some dialects actually interchanges with it. Europeans and Indonesians usually seem to hear and consequently write *r*, e.g. *Ifalĕ* (*vulgo :* Ifaar) ; *Fomfolo*, Simporo. This consonant could be written *l̤*, but for the sake of convenience the dot has been omitted.

[3a] This consonant could be written *b* with a dot underneath, but for typographic reasons the dot will be omitted. The dot has been retained under *d* and *l* as the type was already set when the corresponding omission was suggested. (Ed.)

[4] The clerk and former native school-teacher Saul Ohéi, who has given me valuable assistance.

*m*, *n*. No special comment is necessary for these consonants.

*ng*. This consonant is pronounced as in English *sing*. It interchanges with *m* in some dialects when final. Often it results from assimilation of another nasal to *q* (*k*).

*nj*. This nasal is pronounced as Spanish *ñ*. In most cases it appears as a *sandhi*-form of *n*.

*p* does not exist as such in this dialect. For *p* representing (devoiced) *b* or *f* see above.

*r* does not exist as such in this dialect either; see *l* above.

*s* is rather rare and needs no special comment; see *f* and *h* above.

*t*. See *ḍ* above.

*w* needs no special comment.

§5. *The Accent.*

The accent in the majority of words of more than one syllable lies on the penultimate. Where, in conjugation or otherwise, suffixes are added to the root or stem of a word this rule tends to persist in as much as the accent shifts to the (new) penultimate. When a word ends in a diphthong the accent as a rule lies on the first component of the diphthong. The stated rules are, however, by no means fixed, and several words (especially adverbs) carry the accent on the final syllable, whilst in certain forms of conjugation even ante-penultimate may be stressed. In words of more than three syllables carrying the accent on the penultimate, a weaker stress is heard on the last syllable but three. Sometimes the accent varies for dialect. E.g. *'joqu*, " dog " ; *'měqé*, " he came " ; *'ḍějè*, " I " ; *ha'bĕuqo'qalé*, " I have hit " ; *habĕu'qoqé*, " he has hit " ; *ha'bĕunoqo'qalé*, " I have hit him " ; but *ha'bĕi !*, " hit ! " (imperat.) ; *'bélé*, " that " ; but *bé'lé-nĕ*, " therefore " ; *a'wau*, " uncle " ; *haba'qai*, " tobacco " ; *nahing'ki*, " sufficiently, completely " ; *ba'mo*, " only " ; but *ha'bajĕmpé*, "we two shall hit you" (pl.) ; *habĕ'najĕmpé*, "they will hit you" (pl.) ; *ha'bĕunoqoqé*, " you two have hit him " ; but *habĕuno'qoqé*, " he has hit him " ; *qa'ji*, *qa'i*, " big *prau* for women and children," carries the accent on the *i* in our dialect, but on the *a* in the central dialect, thus *'qai*, etc.

## III. Pronouns

§6. *Personal Pronouns.*

Two series of personal pronouns can be distinguished, a full form used independently or when stressed, and a short or abbreviated form used without stress. It will be noted that no distinction for number is made, except for the 1st and 2nd persons singular and plural; the dual is the same as the plural, but if necessary the word *bé*, " two," may be added. Gender or class is not shown by separate forms or inflections. No distinction is made between an inclusive and an exclusive form for the 1st person plural, a fact that alone should have warned Dr. Wirz against hasty conclusions as to the parentage of the language.

The following table shows the complete set.

| Person. | Full Form. | Short Form. | English. |
|---|---|---|---|
| 1st sg. .. | *ḍějè* | *ḍa* | I |
| 2nd sg. .. | *wějè* | *wa* | you |
| 3rd sg. .. | *nějè* | *na* | he, she, it |
| 1st du. .. | *méjè* | *mé* | we two |
| 2nd du. .. | *mějè* | *ma* | you two |
| 3rd du. .. | *nějè* | *na* | they two |
| 1st pl. .. | *méjè* | *mé* | we |
| 2nd pl. .. | *mějè* | *ma* | you |
| 3rd pl. .. | *nějè* | *na* | they |

Examples : *ḍějè ijmè ěḍěqalé*, " *I* have seen the house " ; *ḍa imè ěḍěqalé*, " I've seen the *house* " ; *nějè fa qabam*, " he is the big (eldest) child," etc.

A special abbreviated form of *nějè* is *niè*, used in expressions like *ḍaqě niè* (*nějè*), " this is it, here it is " ; *bélé niè* (*nějè*), " that is it, there it is " ; *niè jè*, " there you are, there it is, Fr. voilà " (for this emphatic particle *jè* see §13, 18).

The indication of person and of the pronoun object in the verb will be shown below when dealing with the verb.

§7. *Possessive Pronouns.*

As a rule the possessive pronoun precedes the noun. Suffixes are not used, and no indication was found of the phenomenon met in some other Papuan languages that distinguish a suffixed series used for relationship terms and independent forms placed before the noun for other words. A special treatment of certain (not all) relationship terms as regards the indication of possession is, however, apparent as it is in other Papuan languages. But the rules—if any—governing this use are not quite clear.

The following table shows three series of possessive pronouns ; it will be noted that they are related to the personal pronouns. The first series contains the full forms ; the second and third show weak or toneless forms of these, those of the third series being the weakest of the three. There appear to be no distinct rules for the use of any of the three, except that the full forms are used when stressed and independently, the others without stress. The second and third series will be used, according to one of my informants, in conformity with requirements of euphony, but I could find no distinct indication of the accuracy of this statement. Nor does classification of nouns appear to be at the base of the use of either one or the other of the short forms, as is shown when applying them to synonyms from the dialects. Moreover it may be significant that the third series does not include a form for the 1st person du. and pl. that might cause confusion with the 2nd person du. and pl. Still the native does know where to use one or the other and interchange is apparently not possible. E.g. *na děmě*, " his (her, its) tail " ; *ně falěm* (Eastern dial.)=*na jum* (Central and Western dial.), " his (her, its) head " ; *na qěnḍo* (E. dial.)=*ně ěhě* (C. dial.), " his dung " ; *na ijmè*, " his house " ; *ně jam*, " its (a house's) roof " ;

*na jèu*, " its (a tree's) leaves " ; *na jomo*, " its (a knife's) point " ; *ḍě ěhamam*, " my food " ; *wa mě*, " your hand," etc. In all these cases the short form may be replaced by the full form if the possessive is stressed.

I am inclined to believe that the short forms are merely the result of a phonetic process of gradual weakening of the vowel caused by lack of accent, and that practical use has favoured now this, now that form, although the possibility should not be excluded that ancient notions of classification have exercised their influence in determining for one or the other form.

| Person. | Full Form. | Short Form. | Shortest Form. |
|---|---|---|---|
| 1st sg. .. .. | *ḍè(i)* | *ḍa* | *ḍě* |
| 2nd sg. .. .. | *wè(i)* | *wa* | *wě* |
| 3rd sg. .. .. | *nè(i)* | *na* | *ně* |
| 1st du., pl. .. | *mè(i)* | *mè* | — |
| 2nd du., pl. .. | *mai* | *ma* | *mě* |
| 3rd du., pl. .. | *nè(i)* | *na* | *ně* |

As has been remarked, the full forms are also used independently (English " mine," " yours," etc.), e.g. *ḍaqě nèi*, " this is his " ; *bélé ḍèi*, " that is mine," etc.

§8. *Indication of Possessives in Relationship Terms.*

The indication of the possessive pronoun if applied to relationship terms deserves special attention. Like many if not most other Papuan languages Sentani, in the case of such words, applies a somewhat different system from that described above. As has already been remarked, however, a regular system is not apparent and I am inclined to think that the rather irregular way of treating the different terms of relationship is due to a certain degeneration of what originally may have been a distinct phenomenon now confused and influenced by the common system. E.g.

*aḍai*, *aitèi*, " father " :

my, our (du., pl.) father : *mè-qo*, *mèi aqo*, *ḍèi aqo* (not *ḍèi aḍai*).
your (sg., du., pl.) father : *aitèi*, *aḍai*, *wèi aitèi*.
his, her, their (du., pl.) father : *nè-qo*, *nèi aqo*.

*ana*, " mother " :

my, our (du., pl.) mother : *mě-naqě*, *mèi naqě*, *mèi ana*, *ḍèi ana*.
your (sg., du., pl.) mother : *ana*, *wèi naqě*, *wèi ana*.
his, her, their (du., pl.) mother : *ně-naqě*, *nèi naqě*, *nèi ana*, *n'ana*.

*awau*, " uncle " :

my, our (du., pl.) uncle : *mè-wau*, *mèi awau*.
your (sg., du., pl.) uncle : *awau*, *wèi awau*, *w'awau*.
his, her, their (du., pl.) uncle : *nè-wau*, *nèi awau*, *n'awau*.

*fa*, " child " :

my child : *ḍě fa*, *ḍèi fa*
your (sg.) child : *wě fa*, *wèi fa*.

his, her, their (du., pl.) child : *nĕ fa, nèi fa.*
our (du., pl.) child : *mè fa, mèi fa.*
your (du., pl.) child : *mĕ fa, mai fa.*

Other relationship terms like " brother, sister," etc. follow either the system of " father " or the same system as *fa*, which is actually the common system.

It will be noted that in the case of the three examples first mentioned (1) no distinction is made for number ; (2) for the 2nd person the unchanged noun itself may be used, which is the most usual practice ; (3) for the 1st and 3rd person a different noun is used, at least for " father " and " mother," viz. *aqo*, " father," and *naqĕ*, " mother " ; these words are also used for addressing old people in general, whereas *aḍai* and *ana* are restricted to the family-relationship ; and (4) for the 1st person the prefix *mè(i)* reminds us of the possessive pronoun of the 1st person dual and plural rather than the 1st person singular as might be expected ; it is, however, more probably the same element as possessive *mèi* (see below).

In all these cases the construction with the normal full possessive pronoun may be used as well, which may be taken as an indication that an older system, now confused, is being replaced by the common system.

§9. *Indication of the Possessive Relation between Two Nouns.*

The short forms of the 3rd person of the possessive pronoun are also used to indicate the possessive relation between two nouns, e.g. *joqu nĕ falĕm*, " the head of the dog " ; *obo nĕ ĕhamam*, " the pig's fodder " ; *aubaqĕ na ḍĕmĕ*, " the cassowary's tail " ; *onḍofolo nĕ fa*, " the ondofolo's (clan-chief's) child " ; *onḍofolo na qĕlu*, " the o.'s son " ; *ḍa miè nĕ naqĕ*, " the mother of my wife ."

This possessive relation can, if the connection is represented as closer, also be indicated by mere juxtaposition of the two nouns, much in the same way as in English " hill-top," " book-case," etc. and in the same order. E.g. *joqu falĕm*, " dog's head " ; *onḍofolo qaji*, " the o.'s canoe " ; *ondofolo fa*, " the chief's child," cf. Dutch *Koningskind*, " royal child," etc.

In certain cases, for which, however, no distinct rules can be formulated, the possessive relation is indicated by the word *ḍé*, sometimes (for *sandhi* reasons) *lé*, placed in the same position between the two nouns as *nĕ*, *na* mentioned above. In these cases the usual construction with *nĕ*, *na* may also be used. This same word *ḍé* (*lé*) is also used to indicate the genitive in sentences like English " it is John's." Sometimes the use of *ḍé* (*lé*) resembles that of the postpositions ; it may even be compared with a case-ending for the genitive (see below). E.g. *Ḍasim ḍé omi* or *Ḍasim n'omi*, " Dasim's daughter " ; *nè wau ḍé joqu* or *nè wau na joqu*, " his uncle's dog " ; *mè-qo lé joqu*, " my father's dog " ; *onḍofolo lé fĕla* or *onḍofolo na fĕla* or *onḍofolo fĕla*, " the o.'s bow " ; *joqu lé falĕm=joqu (nĕ) falĕm* ; *obo lé ĕhamam= obo (nĕ) ĕhamam ; ḍ'énéu ḍé fa* or *ḍ'énéu nĕ fa*, " my brother's child " ; *mĕ-naqĕ lé énéu* or *mĕ-naqĕ n'énéu*, " my mother's brother," etc.

§10. *Indication of Possession by the Word* mèi.

Possession can also be indicated by the use of the word ***mèi***, placed in the same position as ***na***, ***nĕ*** and ***ḍé***, ***lé*** mentioned above. The use of ***mèi*** denotes that the thing possessed is ***exclusively destined or meant for*** the possessor, is ***his due***. E.g. ***ḍaqĕ ḍèi mèi habaqai***, " this is my tobacco " (meant for me, my due) as opposed to ***ḍaqĕ ḍèi habaqai***, " this is my tobacco " (is my possession) ; ***ḍaqĕ habaqai Jan mèi***, " this tobacco is Jan's " (his due, his part) as opposed to ***ḍaqĕ habaqai Jan ḍé***, " this tobacco is Jan's " (his possession) ; ***maqa mèi***, " for what use, with what destination ? " ; but ***maqa ḍĕ*** (postposition), " for what, to what end ? " ; ***bélé nèi mèi***, " that is his (due) " ; but ***bélé nèi***, " that is his " (possession). Thus in ***jo na jo mèi ijmè***, " the village-people's houses " (*jo*=" village," but also " people ") ; this construction is the usual one as an exclusive destination of the houses of a village for the inhabitants of that village is inherent, whereas in ***bélé ḍo na ijmè***, " that man's house," or ***onḍofolo na ijmè***, " the o.'s house," the house is the possession of the man.

§11. *Demonstrative Pronouns.*

The following demonstrative pronouns are in use. They are unchangeable for number, gender or class, and are placed in front of the noun.

(1) ***ḍaqĕ***, ***bèqĕ***, " this, these."

(2) ***bélé***, " that, those " ; in Buai ***ĕmbé***, Central dial. : ***nĕbĕ(lĕ)***.

(3) ***ḍikĕ***, " that, those, yonder."

The use of the three demonstratives is determined by the distance of the object from the speaker, and has nothing to do with the distinction of three persons for the personal pronouns as is the case in some languages, such as Indonesian. E.g. ***ḍaqĕ ijmè***, " this house " ; ***bélé ḍo***, " that man " ; ***bélé o***, " that tree (wood) " ; ***ḍikĕ ijmè***, " yonder house " ; ***ḍikĕ bé***, " those two " ; ***ḍaqĕ na ijmè***, " this is his house " ; ***ḍaqĕ nèi***, " this is his " ; ***bélé niè*** (***nĕjè***), " that is it," etc.

As a demonstrative pronoun may also be regarded ***nabé***, that refers to something just mentioned, e.g. ***nabé joqu***, " that dog just now, that dog you mentioned," etc.

§12. *Relative Pronoun.*

A real relative pronoun does not exist in Sentani. A relative sentence is rendered as an independent sentence, which as a whole may then be regarded as attribute to the noun in the main sentence to which it refers. If the relative pronoun in English is in the accusative or another inflected case, it is represented by the pronoun object in the body of the verb of the dependent clause or by a postposition added to the personal pronoun. E.g. ***ḍo wéna ĕwolé mana hĕḍĕqé***, " the man (who) went away yesterday died to-day " ; ***ḍo wéna ĕḍĕqanalé mana hĕḍĕqé***, " the man I saw him (i.e. whom I saw) yesterday died to-day " ; ***joqu wéna ḍĕjè ikilĕuboqalé, mana hoboqalé***, " the dog I caught yesterday, I killed to-day " ; ***ḍo wéna ḍĕjè na-buqo-ḍĕ ĕqalé mana habĕunoqoqalé***, " the man I his-side-to went (i.e. with whom I went,

whom I visited) yesterday I hit him to-day " ; in this last example the order of the sentence may be inversed : *mana ḍějè habĕunoqoqalé ḍo* . . . etc.

§13. *Interrogative and Indefinite Pronouns.*

The interrogative pronouns are :

(1) *hinĕ*, " who."

(2) *maqa*, " what."

The English " which " is rendered by *mba*, *mpa*, that means " where " and the personal pronoun of the 3rd person added to it ; the latter is then often abbreviated to *niè*. A synonym of *mpa* is *mbĕlé*, *mpĕlé*, used for greater distance, and in combination with *nějè*, *niè* this also means " which." E.g. *bélé hinĕ*, " who is that ? " *bélé ijmè hinĕ lé*, " whose is that house ? " ; *ḍaqĕ hinĕ lé habaqai*, " whose tobacco is this ? " ; *ḍaqĕ maqa*, " what is this ? " ; *ḍaqĕ maqa ḍĕ*, " what is this for ? " ; *ḍaqĕ maqa mèi*, " what is this for, to what end ? " ; *mpa niè* (*nějè*) *wĕ fa*, " which is your child ? ", etc.

Indefinite pronouns are rendered by nouns like *ḍo*, " man," *ĕha*, " thing," etc. and the emphatic element *jè* added to them, e.g. *ḍo jè mĕlé*, " it is a man (somebody) comes " may be the answer to the question " who is there ? " that in English would be plainly " somebody " ; thus *ĕha buhi jè honolé*, " some sort of thing is present " (i.e. " there is something ") ; *ḍo bam*, " nobody, there is nobody " (lit. " man not ") ; *ĕha buhi bam*, " nothing, there is nothing " (lit. " thing sort not "), etc.

This *jè* is an emphatic particle, sometimes resembling an article in English, but of wider use. It may, for instance, be used in a plural sense as well, and generally emphasizes a word or a statement. E.g. *wéna ḍějè ijmè jè ĕḍĕqalé*, " I saw a *house* yesterday " ; *ijmè jè ĕḍĕwalé*, " I saw (looked over) *house*(*s*) " ; *Jan jè mĕlé*, " (it is) *Jan* comes, *Jan* is there " ; *niè jè*, or *nějè*, " there it is, there he is ", etc.

## IV. Nouns, Adjectives and Postpositions

§14. *Nouns.*

Normally nouns do not change for number, gender or class. If indication of number or gender is specially wanted, separate words can be added, e.g. *ḍo bé*, " the two men " ; *fa*, " child " ; *qĕlu fa* or *qĕlu*, " son " ; *mèngkè fa* or *omi*, " daughter " ; *obo*, " pig " ; *obo muqu* (accent on the last syllable), " male pig " ; *obo nabĕ* (*nafĕ*), " female pig," etc. In some cases the words indicating sex are so closely attached to the noun as almost to give rise to new words of different gender, e.g. *ḍo*, " man " ; *miè*, " woman " ; *kilo* (<*ki*+*ḍo*), " a new-born (male) child " ; *kimiè*, " id. (female)" ; *ambulo*, " dead (man's) body " ; *ambomiè*, " dead (woman's) body." Words like *ḍo*, " man " ; *miè*, " woman " ; *aḍai*, " father " ; *ana*, " mother " ; *énéu*, " brother " ; *émèm*, " sister ", etc. are of course in themselves different for sex.

In one or probably a few more isolated cases number seems to be indicated by repetition, e.g. *fa*, " child " ; *fa-fa*, " children," but this is the only example I have come across. Repetition may indicate intensity, e.g. *qani-qani*=*qangkam* (<**qam-qam*), " torn to shreds " ; *ḍuqa-ḍuqa*, " thick " ; *qaiké-qaiké*, " he split up

(completely)," etc. It does not, however, form the normal plural of nouns, and it occurs in the singular as well, e.g. *qalaqala* (accent on the last syllable), " finger, toe."

A special form of repetition with a plural or generalizing sense is the juxtaposition of two nouns of synonymous or related meaning, e.g. *qaji-ifa*, " canoe " (in general), from *qaji*, " big canoe for women and children " and *ifa*, " small canoe for men " (both words have the accent on the last syllable) ; *ḍo-miè*, " man " (the human species) ; *ḍo*, " man " (the male of the species) ; and *miè*, " woman," etc.

Number is always indicated in the verb both for the subject and for the pronoun object ; the pronoun object is often omitted when it refers to non-human beings or objects. Gender or class, however, are not indicated in the verb, and there is in fact very little evidence that a system of classification of nouns exists. As a possible survival of such classification may, as we have seen, be regarded the curiously irregular way of indicating possession in relationship terms. Another survival may be seen presently when dealing with adjectives.

No articles are in use. When necessary, e.g. with emphasis, the definite article may be rendered by the demonstrative pronoun.

A real declension of nouns does not exist, but very often a postposition is added to a noun in such a way as to resemble a case-ending for the accusative or oblique case, e.g. *Jan ḍě boḍanalé* or *Jan ně boḍanalé*, " I hear Jan " ; *Jan ḍě ěḍanalé*, " I see Jan " ; *joqu ně howojè*, " you have killed (a) dog(s)," etc. More will be said about this when dealing with the postpositions themselves. It will be noted here, however, that the object, though already mentioned as a noun, is often repeated as a pronoun in the verbal form. But as we shall see below, this is not a general rule ; the pronoun object is often omitted when it refers to animals or inanimate objects, and sometimes the use of the pronoun object indicates not the direct object but the indirect object : it then suggests that the action is done to, in favour or for the benefit of the indirect object.

Very similar to the use of postpositions in the way just described is the use of *ḍé* to indicate possession, i.e., as we might say, for the genitive case, e.g. *Ḍasim ḍé omi*, " Dasim's daughter," etc. (see above, §9). And in the same way all postpositions indicating direction, separation, location, etc. could be compared with case-endings, respectively for an accusative of direction, an ablative, a locative, etc. But actually the phenomenon is not of such a nature as to allow us to describe it as declension, although these postpositions are more or less enclitic and are pronounced together with the preceding word.

§15. *Adjectives.*

The adjective is placed after the noun to which it belongs. The same is the case if the adjective is used predicatively, so that no formal difference exists between *bélé ijmè qabam*, " that big house," and *bélé ijmè qabam*, " that house is big." Context and tone of speech will be decisive for the distinction.

It is, however, doubtful if this order is the original one. The demonstrative, for one, is placed *in front* of the noun, and sometimes we find the same position for adjectives, e.g. *hoqolo fa*, " the young (i.e. the younger, youngest) child " ; *bĕna fa*, " the old (i.e. the elder, eldest) child." In these cases the expression has acquired a specialized meaning, although *fa hoqolo, fa bĕna*, etc. are also used.

Generally speaking adjectives do not change for number or gender (class), but in one or possibly a few more isolated examples such seems to be the case for gender, e.g. *malé*, " old " (of age) : *ḍén malé*, " an old paddle " ; *ḍo ḍélé*, " an old man " ; *miè nalé*, " an old woman ." But *ḍo hoqolo*, " a young man " ; *miè hoqolo*, " a young woman." Here again it would seem, has survived a remnant of a system of grouping or classification of nouns, carried over into dependent adjectives in accordance with the principle of sentence concord.

Adjectives are sometimes formed by repetition which suggests the idea of intensity, e.g. *qani-qani*, " torn to shreds " ; *qangkam*, " id." (<**qam-qam ?*) ; *ḍuqa-ḍuqa*, " thick," etc.

The comparative degree of adjectives is expressed by adding the word *sĕlĕ, hĕlĕ*, " much, very," e.g. *ḍaqĕ qabam, bélé qabam sĕlĕ*, " this is big, that is bigger." No separate superlative is in use ; where necessary it must be rendered by *sĕlĕ* as well.

§16. *Postpositions.*

In Sentani postpositions are what in English are prepositions. They follow, therefore, the noun or pronoun to which they refer, and are enclitically pronounced together with it. The accent of the preceding word, if consisting of more than one syllable, tends to shift to the last syllable, i.e. to the new penultimate.

As has been remarked postpositions sometimes seem to function as case-endings, but, it was added, the connection is not of such a nature as to give rise to a genuine declension. The use of postpositions in these cases probably depends on the nature of the action of the verb upon the noun object and on the value of the postpositions themselves, that allow of fine distinctions for expressing the way in which the action of the verb is directed on to the object. Sometimes, therefore, more than one postposition (*ḍĕ* or *nĕ*) can be used ; very often no postposition is used at all, whereas in some cases the use of a postposition is the rule.

Thus postpositions are often used together with a *pronoun object* in such verbs as " to see," " to hear " (that do not imply a real action), and, as has already been remarked, the use of the pronoun object often indicates that something is done *to* or *for* someone or something else, i.e. for an *indirect* object. Again postpositions are often omitted in such constructions with modal affixes, notably in the definite past, as in themselves emphasize the connection between the action and the object. These facts seem to suggest that the use of postpositions in these constructions has emphatic force also, i.e. they form a special link between certain kinds of actions and the (indirect) object according to the nature of the former. This suggestion finds some

support in the fact that in these constructions very often the emphatic particle *jè*, already mentioned, may be used instead of the postposition. It will be understood, however, that for obvious reasons postpositions, unlike the particle *jè*, can never be used to emphasize the *subject*. E.g. *Jan ḍě boḍanalé*, " I hear Jan " (i.e. I'm listening *to* him) ; *Jan ně boḍanalé*, " I hear Jan " (i.e. I'm hearing the voice *in* him) ; *Jan jè boḍanalé*, " I hear Jan " (i.e. it is Jan I hear). In *Jan ḍě ěḍanalé*, " I see Jan " (i.e. I'm looking *towards* him) the postposition cannot be replaced by *ně* because this is felt as incompatible with the idea of seeing, looking, and with the fact that it is impossible to look *into* the person in question. *Jan jè ěḍanalé* means " it is Jan I see." Thus *joqu* (*ḍě*) *ěḍ*(*an*)*alé*, " I see a (the) dog," in which both the postposition and the pronoun object may be omitted (see for the latter §28) ; *joqu jè ěḍ*(*an*)*alé*, " it is a dog I see," etc. In *joqu ně howojè*, " you have been killing (a) dog(s)," *ně* cannot be replaced by *ḍě* because this is felt to be incompatible with the idea of killing ; *Jan* (*jè*) *ěḍěqanalé*, " I have seen Jan " ; *wéna joqu* (*jè*) *hoboqalé*, " yesterday I killed a dog " ; *Jan* (*ḍě*) (*jè*) *hoboqé*, " he has killed Jan," etc.

In the same way postpositions can be added to pronouns, e.g. *ḍa ḍě haběwouḍě*, " he (she) has hit me " (with pron. obj.) ; *ḍa ěhaběi na ḍě*, " I shall not hit him " ; but in *méjè ěḍěqamè*, " you have seen us," the postposition is left out because the emphatic form of the pronoun is used, but it is repeated as a pronoun object in the body of the verbal form.

The following postpositions are in use :

(1) *na, ně, nja, njě*, " in, at " ; e.g. *ifa na*, " in the canoe " ; *bu ně*, " in the water " ; *bélé měqai nja*, " in that way, in such a manner " ; *bu ěi njě*, " in the middle of the water " ; *Ohéi djo ně*, " in the village of Ohéi." Influences similar to those in force for the possessive *na, ně* also determine the use of *na* or *ně* in this case. *Nja* and *njě*, of course, are *sandhi* forms produced by the influence of the preceding *i*-sound (see §1).

This postposition can sometimes be added to verbal forms to indicate the conjunction " if, when," e.g. *měqalé-na*, " if I had come, when I came " ; *moqoḍo-bonté-ně*, " if I (shall) do it, when I do it," etc.

(2) *ḍa*, " from " ; e.g. *Buai djo ḍa*, " from the village Buai " ; *ijmè ḍa*, " from the house," etc.

(3) *ḍě*, " to, for " ; e.g. *nèi djo ḍě*, " to his village " ; *maqa ḍě*, " what for " ; *ěm fè habaqai ḍě oléidjaitě*, " they roll banana leaf for tobacco," etc. For the role of *ḍě* in the future tense see §22 and §29.

(4) *jèlé*, " with " ; e.g. *nějè jèlé*, " with him " ; *ḍo jèlé*, " with the man " ; *o jèlé*, " with a stick (wood) " ; *ḍo jèlé miè jèlé*, " man and woman (wife)," etc. Much the same sense has the repetition of *ḍé* (*lé*), e.g. *Jaqali lé Ajoqoi té* (<*ḍé* because of the preceding *i*).

Apart from the genuine postpositions mentioned above there are several compounded expressions that have the same function. Usually they are composed of a noun with a genuine postposition after it, e.g. *na buqo ḍĕ (nĕ)*, " by his side, next to him, together with him " (lit. " his side to, at "). Thus *ḍan nĕ* or *buma nĕ*, " upon, over " ; *qĕlé nĕ*, " under " (if an object is actually overhead) ; *a nĕ*, " beneath " (in a lower position) ; but *bammè*, " without " (probably from *bam*, " not," and the same element as the possessive *mèi*, i.e. lit. " not possessing," or the emphatic particle *jè*), e.g. *o bammè ĕlé*, " he walks without a stick," etc.

## V. Adverbs, Interjections and other particles

§17. *Adverbs.*

Adverbs may be distinguished in those that are such in themselves, although some of them, if not all, may originally have been derived words, and those that are derived from other words. To the former belong such words as *mana*, " to-day, now " ; *wéna*, " yesterday " ; *wahéna*, " to-morrow " ; *mba*, " where " ; *mĕhé*, " how, why," etc.

Derived from other words are adverbs like *ḍéniai-djè* (with the emphatic particle *jè*), " by night, of nights " ; *ḍéniai-nja*, " in the night " ; *na ḍéniai*, " last night " ; *ḍai-njĕ*, " in the day, by day " ; *na huwé*, " last evening, afternoon " ; *ḍaqĕ na*, " here " ; *bélé nĕ*, " there " ; *ḍike nĕ*, " yonder," etc.

Adverbial expressions can be formed by adding a qualifying noun, e.g. *mana ḍéné*, " this morning " (lit. " to-day morning "), etc.

Sometimes we find reduplication of adjectives to form adverbs, e.g. *na-hingki-hingki*, " sufficiently," but here the reduplication indicates intensity rather than adverbial quality, and it is not specific for adverbs. It is also found in adjectives.

§18. *Interjections and other Particles.*

These parts of speech will be dealt with here very briefly. Interjections like *wo !*, " o ! " (vocative) ; *wai !*, " oh, alas ! ", etc. are of little importance for the purpose of this outline. Such particles of grammatical importance as the emphatic *jè* and the negative *bam* or *ba* have already been mentioned in other places. Negative verbal forms will, of course, be dealt with in the paragraph on the verb.

## VI. Numerals

§19. *The Numeral System.*

The numeral system in Sentani seems to be partly based on fours and partly on the method of indicating the numbers by parts of the body. The first four numerals are independent and separate words, but " five "=" one handpalm " and after this compounding begins : " six "=" on the other hand one." " Two hands " means " ten," but " twenty "=" one body " or " two feet two hands,"

" forty "=" two bodies," etc. Other auxiliaries, such as " bracelets," are also in use. The complete set up to 100 is as follows:

| | |
|---|---|
| 1: *mpai* (*mbai*) | 12: (*mĕ bé*) *mĕ hoki bé* |
| 2: *bé* | or *mĕ bé oḍo nĕ bé* |
| 3: *namé* | 15: *mĕ bé oḍo fè* (*ḍĕufi*) *mpai* |
| 4: *qĕli* | 16: *mĕ bé oḍo hinĕ mpai* |
| 5: *mĕhĕmpai* (*mĕ-fè-ĕmpai*) | 18: *mĕ bé oḍo hinĕ namé* |
| 6: *mĕhinĕ mpai* (*mĕ-ĕhi-nĕ mpai*) | 20: *u mpai* or *oḍo bé mĕ bé* |
| 7: *mĕhinĕ bé* | 30: *u mpai mĕ bé* |
| 8: *mĕhinĕ namé* | 36: *u mpai mĕ bé mĕhinĕ mpai* |
| 9: *mĕhinĕ qĕli* | 40: *u bé* |
| 10: *mĕ bé* | 60: *u namé* |
| 11: (*mĕ bé*) *mĕ hoki mpai* | 80: *u qĕli* |
| or *mĕ bé oḍo nĕ ĕmpai* | 100: *u mehempai* |

*Notes.*—*hoki* means " bracelet," so that " 11 " is really " (two hands) one bracelet," or " two hands, on the foot one "; " 15 " means " two hands, footsole (one side) one."

The numerals above " fifteen " given in the table are those in use now by the younger generation. The older system was even more complex: " 18 "=*mĕ bé oḍo fè mpai oḍo ĕhi nĕ namé* (lit. " two hands, footsole one, on the other foot three "); " 30 "=*u mpai u ĕhi nĕ mĕ bé* (lit. " one body, on another body two hands "); " 36 "=*u mpai u ĕhi nĕ mĕ bé mĕhinĕ mpai* (lit. " one body, on another body two hands, on another hand one "), etc.

The numeral is placed after the noun, e.g. *ḍoqo mpai*, " one time, once upon a time "; *ḍo bé*, " two men "; *obo qĕli*, " four pigs," etc.

Fractions are not in use; a method of indicating them exists by using the word *fo*, an abbreviation of *fo-fo*, " short," e.g. *fo qĕli*, " (divided) in fours," etc. For " half " the word *nolo*, " middle, midst," may be used.

Ordinal numerals are not in use either; they are rendered by the cardinal numerals. For " first " the word *bĕ*, " before, foremost," may be used. Sometimes " second " can be rendered by *ĕhi*, " other," e.g. *ḍoqo ĕhi*, " another, a second time," etc.

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(To be continued.)

# INFLUENCE OF EUROPEAN CULTURE ON AUSTRALIAN ABORIGINES[1]

By Ronald M. Berndt

THE object of these comments is to counteract, to some extent at least, the depressing conclusions which Dr. Lommel has drawn. The author's contention is that the influence of modern (European) culture on the life of the Australian Aborigines has been mainly a psychological phenomenon (p. 14). Everywhere, he claims, the result of the slightest contact seems to be a falling birth rate, and a disintegrating social organization (p. 15): to the Aborigines the physical act of generation was virtually insignificant, the accent being on a psychic condition (crystallized in a dream); and since these dreams now occur less frequently, being clouded by visions relating to Europeans and their contact (the natives' psychic sensibility being upset), the birthrate falls (pp. 16-17). When the psychic balance of the Aborigines is disturbed, the abilities of the medicine-man seem to decline, and he is unable to operate (p. 19). Moreover, we are told, the Aborigines do not differentiate between an experience during a dream and an experience in real life (p. 19).

Dr. Lommel concludes by outlining a cult which he calls " kurrangara," described as being concerned with European contact, but having a mythology, and a traditional basis (pp. 21-24). It involves a " new " view of time, which now brings in the future; but this future is felt to be " extremely dark," a deep melancholy and apathy being salient characteristics of the present attitude. This is " darkened still more by additional mythological features linked with the cult " (p. 24)—for example, women may take the place of men! An eschatological attitude is the outcome.

Dr. Lommel's research took place in 1938 in north-western Australia. My own field work was in the eastern Kimberleys and in adjacent regions in the Northern Territory (including Wave Hill, Limbunya, Waterloo, Tanami and the Granites) in 1944–45, and therefore I do not possess first-hand knowledge of Dr. Lommel's area. Certain cultural elements however are common throughout the region, and I have got intimate knowledge of the " kurrangara," which has a wide distribution. Further, it is doubtful whether Dr. Lommel was sound in generalizing from Ungarinyin, Worora and Unambal (p. 14) material only. Culture contact conditions vary so considerably throughout Australia that one should generalize only most broadly, and only in regard to features more or less fully documented anthropologically. His assumptions, moreover, do not appear to be tenable for the greater part of Aboriginal Australia. Alien contact with Australian Aborigines does not necessarily lead to psychic apathy and depression, with belief in the imminent " end of the world." And depopulation is not always the outcome, although this has taken place in many regions.

While acknowledging that psychological changes may be distinguished before any change in the material culture has taken place, I consider that the influence of European culture on the life of the Aborigines is not primarily a psychological phenomenon. The impact of alien contact can be simultaneously psychic and material, the two being inseparably interrelated. Dr. Lommel tells us that in the

[1] A critique of Dr. A. Lommel's article in *Oceania*, Vol. XXI, No. 1, pp. 14-24.

Kimberley Division there were broadly three groups who lived in every imaginable state between undisturbed indigenous culture and complete absorption (pp. 14–15). The few belonging to the first group avoided contact with modern culture and preserved a " Stone Age " way of living ; Dr. Lommel " conversed with them with the help of interpreters," an inadequate approach. It is possible that these people in 1938 had been influenced more than he suspected by European culture, which had then (p. 15) " made itself strongly felt " ; alien goods and ideas would come through Aboriginal channels, from more fully acculturated members of other groups.

Alien contact does not inevitably result in depopulation, despite the fact that in many cases it is followed by cultural and social disintegration. Dr. Lommel should have prepared depopulation and vital statistics for the three groups which he discusses. In central-western Northern Territory and in the eastern Kimberleys, the present writer and his wife came to realize the psychological effects of malnutrition in lessening the desire to produce children, so that abortion was widely practised.[2] This is an important aspect of depopulation ; but the psychological factors involved there stemmed directly from physical conditions imposed on the Aborigines by the dominant alien group. These upset radically not only the natives' material welfare, but also their " psychic balance " (that is, the emotional bond existing between themselves, their environment and their culture), leading to a form of psychical apathy or depression. The latter, however, could be remedied in some degree by sympathetic and understanding welfare work backed by good administration. The point is that depopulation may result indirectly from psychical apathy, of a kind differing somewhat from that noted by Dr. Lommel. This apathy may be caused in a variety of ways ; and, ignoring in this context apathy and depression arising from purely indigenous factors, all certainly spring from direct or indirect alien contact.

Alien contact in Aboriginal Australia, however, has not led inevitably to a falling birthrate and cultural disintegration—for example, along the Arnhem Land coast from Caledon Bay to Cape Stewart,[3] at Bathurst and Melville Islands, and Port Keats. Moreover, a falling birthrate is not necessarily synonymous with tribal or cultural disintegration. Dr. Lommel says that " in spite of favourable economic and hygienic conditions in the Kunmunja Mission, the decline of the birthrate was evident even there " (p. 15). Economic and hygienic conditions, although they have a considerable bearing on the question of depopulation, represent only one aspect of an extremely complex problem.

Dr. Lommel's discussion suffers from over-simplification of matters relating to the culture contact situation, from insufficiently supported generalizations, and from lack of comparison with relevant situations in other parts of Aboriginal Australia.

The same may be said of the statement that " whenever a closer contact takes place, a falling birthrate may usually be ascribed to introduced diseases or declining economic conditions " (p. 16). This is not always the case. Nor is news of modern culture alone sufficient to destroy the Aborigines' concept of the universe (p. 16) ; the account of the " kurrangara " should prove the contrary. Mere contact with an alien culture need not inevitably have a profoundly disturbing effect on these " primitives " to such an extent that their entire way of living, and indeed life itself, is revolutionized. Nevertheless, it does affect the Aborigines, both psychologically

[2] *Vide* R. and C. Berndt, *Native Labour and Welfare in the Northern Territory*, Sydney, 1946 (duplicated typescript), pp. 68-71, 153-165.

[3] R. and C. Berndt, *Arnhem Land, Its History and Its People* (F. W. Cheshire Pty. Ltd., for publication).

and materially in varying degrees. It alters, modifies, accentuates or eradicates, as the case may be, certain aspects of traditional and indigenous life and culture. Sometimes this results in disintegration, tribal apathy, depopulation and finally extinction; but just as often it merely alters the stream of native life, changes internal institutions, and re-orientates ideology, leading to some measure of physical and psychical readjustment to changing conditions. It does not always destroy the Aborigines' concept of the universe, although, indeed, traditional motivation may be changed. In extreme cases, of course, their biological existence may be and has been affected; but this is by no means inevitable.

As Dr. Lommel says (p. 17), the Aborigines' reproductive abilities depend not only on their physical wellbeing but also on their psychic balance; one need not, however, formulate the same conclusions.

Dr. Lommel tells us (p. 16) that at Kunmunja "the aborigines regarded a special psychic disposition, which they called a dream, as the cause of pregnancy . . . There, in the mission, the problem of ignorance of physical paternity did not exist. The physical facts had been brought to their knowledge by discussions with white persons . . . To them the physical act of generation was more or less insignificant; the accent was on a psychic condition—a dream—which they regarded as being of biological importance concerning their procreative disposition." The assumption here is that before the advent of the alien the Aborigines were ignorant of physical paternity. We are not told how this is to be correlated with the description on page 19 of "two snakes . . . copulating and incessantly engendering spirit children." The physical act of generation seems to have been significant in so far as the production of spirit children were concerned, so why not of the material part of a child? This "conception" dream is indispensable, but to the Aborigines the physical act is equally so. In the eastern Kimberleys, as in many other regions, the Aborigines believe that one or many acts of coitus result in the formation of an embryo, while the dream provides the soul or spirit (for example, page 17, ". . . From that snake originates an anthropomorphic called Wondjina, representing rain and fertility. In the depth of wells, which resist the heat of the summer, these two beings are incessantly creating so-called spirit children, souls of children to be born"). The physical act of generation in many parts of Aboriginal Australia is of great significance, manifesting itself not only in everyday life, but also in love magic and sweetheart songs, and in religious ritual and mythology. Physical love, physical increase of human beings and of the natural species, supply a theme which at times assumes dominating importance. Pregnancy is brought about by the sexual act, the fœtus being formed by elements from both the mother and the father; but for this physical material to "become alive," to be animated, to receive the "breath of life," the soul or spirit must enter it. This soul originates in much the same way as that described by Dr. Lommel and is manifested through the medium of the dream. This blending of the physical with the psychical would possibly be found also at Kunmunja. The anthropologist may well feel the spiritual side of conception and pregnancy to be paramount in the minds of the Aborigines (and Dr. Lommel is not alone in this). But closer enquiry, along with an intimate knowledge of the language, of religion and love magic, may perhaps dispel the idea that the Aborigine regards the physical act of generation as insignificant.

My wife and I have worked in regions subjected to a great deal of alien contact in various forms; and although the Aborigines' material culture has been affected, their dreaming of "Spirit Landings" (in which appears the soul of the child to be born) has not suffered. In one area, however, where malnutrition and ill-treatment had led to serious depopulation, the reasons given for the non-dreaming of "Spirit

Landings " were that as few women became pregnant, few embryos were formed, and consequently few dreams could occur. At Goulburn Islands and Oenpelli,[4] too, there was said to be a large surplus of spirit children awaiting embryos to animate. " Where are our mothers ? " they are said to ask, " Where our bodies ? " Depopulation in that region was caused directly through alien contact, and the introduction of venereal diseases was a contributing factor. Several men complained: " I work and work my wives night and day, making myself tired out, and still no babies come. And there are all the spirit children waiting ! " There, too, virtual promiscuity is the accepted pattern, men and women having intercourse with a wide range of partners ; but abortion and contraceptive measures are not practised to any significant extent.

Detailed study of dreams at Yirrkalla, in north-eastern Arnhem Land, revealed that although the Aborigines could become profoundly disturbed by contact with alien culture, their psychic disturbance did not in any way interfere with traditional forms of dreaming relating to magic, to ritual and religious dogma, or to " Spirit Landings " associated with conception and pregnancy.

Let us consider Dr. Lommel's paragraph on p. 17 : " The disturbance caused by approaching modern culture—by direct contact or even by rumours—may be sufficient to upset their emotional balance in such a degree that the psychic disposition necessary for the physical act of generation will not be attained any more." In context, this appears to mean that because the Aborigines are disturbed emotionally by alien contact they cannot have full sexual intercourse, or if they do the spermatozoa will be infertile. One may query the validity of this assumption. Male or female sterility appears to be brought about through purely physical forms of disastrous alien contact, disease, malnutrition, and so on. These physical factors can and do disturb the Aborigines' emotional and psychic life, for lowered bodily health diminishes the desire for intercourse. Malnutrition and venereal diseases, of course, lead eventually to sterility.

Aborigines who have had intensive alien contact but who are economically secure and well fed, are emotionally satisfied to some extent, and are free from disease, do not lose their inclination and ability to indulge in intercourse, or to impregnate and be impregnated. Lack of faith in life, caused by the collapse of indigenous forms of social control and religion, may bring about disillusionment and emotional upset, but there is no proof that this impairs either their desire for sexual intercourse or their fertility. For example, when traditional rules of behaviour are broken down, and alien contact has not succeeded in replacing them or in re-establishing the Aborigines' emotional security, sexual licence may become general ; this has happened in many parts of the Northern Territory, such as at Oenpelli, Goulburn Islands, Darwin and Katherine, where women and men have more extramarital intercourse and where more children than formerly are born outside the marriage bond.

Depopulation has its origin in the disturbance of the physical *status quo*, and this gives rise to psychic upset and emotional instability.

Psychic disturbances, however, do not necessarily lead to the termination of all forms of traditional behaviour and thought (although they may eventually curtail them), nor do they inevitably terminate the activities of native doctors or " medicine men." Everything depends on the extent and intensity of alien contact, on the degree of responsiveness within a society to alien concepts and practices, and on the

[4] *Vide* R. and C. Berndt, *Sexual Behaviour in Western Arnhem Land*, Viking Fund Publications in Anthropology, N.Y. (In the press.)

policy and practice of the local Administration. Traditional culture may change: various elements may be modified or intensified, new ideas and institutions may be adopted and adapted, or superimposed on the old, as the case may be. Intensive alien contact may take place, and the social unit survive without inevitable depopulation.

On page 19, Dr. Lommel tells us that " For the Aborigines there is no difference between an experience during a dream and an experience in real life. Both spheres have the same reality, and they are unable to separate them." This is not true for the Australian Aborigines among whom the writer has worked, who make a definite distinction between dream and waking life. Both spheres are " real " in their own right, but each has a different kind of reality. The two overlap only in relation to sorcery, to the initiation and experiences of native doctors. Knowledge of the local native languages, together with the collection of texts relating to everyday life, to mythology and to dream life, should clarify this point.

We have now come to the focal point of Dr. Lommel's paper, the " new " cult called the " kurrangara " (pp. 21–24), in connection with which he draws the depressing assumptions found on page 24. I do not think that one can legitimately call this a " new " cult, even though it has only recently spread into the Kimberleys of north-western Australia. Having a traditional background and mythology of its own, through the contact of various Aboriginal groups with one another it has gradually been spreading until it is now fairly widely diffused. While " new," perhaps, to the people who see it for the first time, it is " old " in its region of origin. It may indeed be compared to a psychic wave which revitalizes the postulants (p. 21), and its blending of alien European ideas with traditional forms demonstrates its high degree of flexibility and assimilatory powers.

The " kurrangara " described by Dr. Lommel has apparently changed its original function and meaning on arrival in the upper Kimberleys. In the eastern Kimberleys, north-central Northern Territory and the Tanami-Granites region, the " kurrangara " (*gu'rayara* or *grayara*) is part of the great religious Kalwadi-Kadʒari-Kunapipi Cult which has spread widely throughout the upper northern half of the Northern Territory.[5] The *gu'rayara* is also known as the *wilbibi*, and is sacred, concerning itself with various interrelated totemic myths particularly associated with the great Ancestral Being named Sanba or Dʒanba (the Tjanba of Lommel, p. 23); he in turn is linked with the Fertility Mothers, Kalwadi or Kadʒari, and the exotic Muŋamuŋa women (daughters or reflections of their Mothers, Kadʒari). It is rich in mythology and ritual; and in the many song cycles (as yet unpublished) collected by the reviewer, purely indigenous and traditional subjects are treated. It is thus most interesting that contact features should appear in the examples quoted by Dr. Lommel. The *gu'rayara* I know intimately, however, is very different in content to that described by Dr. Lommel, although it is quite obvious that the " kurrangara " is related to the original. A comparison between it and the more southerly *gu'rayara*, in matters of ritual, mythology and interlinear songs, would be of great value.

The *gu'rayara* does not absolutely exclude women (as apparently in Dr. Lommel's case). Women too have their part to play, and although they do not as a rule see the rituals, they can " hear " the singing, and they may perform their relevant ritual either alone (away from the men) or in the main camp.

[5] R. Berndt, *Kunapipi*, F. W. Cheshire Pty. Ltd., Melbourne, 1951 (in press). With reference to the *gu'rangara* also see E. Worms, " Die Goranara-Feier in Australischen Kimberley," *Annali Lateranensi*, Vol. VI, 1942, pp. 208-235; and Helmut Petri, " Kurângara. Neue magische Kulte in Nordwest-Australien," *Zeitschrift fur Ethnologie*, Band 75, 1950, pp. 43-51.

It is not easy to understand Dr. Lommel's reference to time on p. 24, where he states that " . . . time has also changed its aspect in the new myth of the kurrangara cult. Hitherto there was no concept of a future. There was only an eternal dreamtime uniting the beginning of the world and the present. The past was more important than the present, the latter being only a reflection of the former. Now the past is fading away and the present derives its importance from a future with a menacing end of the world." Dr. Lommel does not apparently understand the full import of the concept of the " eternal dream time."[6] There has always been a concept of the future, for the " eternal dream time " means that an eternal stream runs on unendingly from the beginnings of time, and in it the past, present and future are as one. The concept is thus concerned not so much with time as we view it, as with traditional immutability : what has been, is, and will always be. It is not a phantasmagoric concept relating to a dream in the ordinary sense of the term. The past could not, from this point of view, be more important than the present or the future, for according to the Aborigines' concept there are no such arbitrary divisions. The past, the present and the future are clearly defined when necessary in everyday life, but not where the " eternal dream time " is concerned. It is a concept representing a special view of life, but that does not mean that the Aborigines are always caught up in these mystical ideas, and live in a haze where no time at all is distinguished ; the two may function concurrently.

Perhaps the Aborigines are to-day " far more conscious of their actual living conditions " (p. 24), but this is not necessarily because of any alteration in the concept of time. Before European contact the relatively smooth running of indigenous forms of organization and food collecting produced a certain satisfaction with local living conditions—this, in effect, was the way to live, with control (physically and magically or, indeed, religiously) over one's immediate environment. To-day the *status quo* is altered through alien contact ; indigenous supplies of foods are perhaps no longer so readily available, and living conditions have altered ; outside agencies beyond the supplication and control of the Aborigines now provide food, living quarters and employment, and alien goods have been introduced. Obviously the Aborigines are now becoming more deeply aware of their actual living conditions ; and if these are adverse or mediocre their awareness is accentuated, and their " psychological unbalance " further intensified.

Dr. Lommel comments (p. 24) : " The future is felt to be extremely dark, and a deep melancholy and apathy are salient characteristics of the present attitude." " This attitude finds its artistic expression in the ' kurrungara ' myth and dances . . ." It appears to this reviewer that the Aborigines of Dr. Lommel's region are making an endeavour to assimilate, to incorporate alien elements into traditional forms, to find explanations for strange phenomena, and to create a living and vital faith, in their own particular way. They are still interested in the world around them—in the world of the Aborigines and in the world of the European. They are endeavouring to blend the elements they know from both quarters and endeavouring in this way to establish a faith in which the future will be clearly related to the past, or in other words to remain in the continuum of the " eternal dream time." The reference to women's taking the place of men (p. 24) in matters pertaining to ritual needs much more analysis, and the reviewer suggests that Dr. Lommel has incorrectly assumed that the natives regard this with serious apprehension. There is no reason why they should feel serious misgivings on this score,

[6] *Vide* A. P. Elkin, *The Australian Aborigines*, Sydney, 1938.

for the source of ritual power and sacredness may be found in woman.[7] In any case, the admission of women into cult activities could serve to reinforce its influence; in the traditional *gu'rayara* women have already their defined part to play. The "fear" that women may gain complete executive control of such ritual, and that "the social order will be completely reversed" is something that lies within the control of the men; and the fact that they consider it as a serious possibility demonstrates, perhaps, the important position women already hold in relation to the cult.

The eschatological myth is present in many Aboriginal cultures, but in most cases it expresses deep psychological attitudes which are traditionally founded. It is something that is not normally, in Aboriginal Australia, at a conscious level, and in the reviewer's experience has never been expressed by the Aborigines as individuals or as a group. They may become emotionally upset owing to their physical circumstances, and see their culture toppling around them; but as far as we know they cannot really envisage complete destruction, the cessation of the "eternal dream time" stream, and the life they know, even if under the most intensive and disastrous form of contact. The eschatological concept, if present, is at a subconscious or unconscious level; and if physical and material life be curtailed, the spiritual essence survives. Even if the culture should disappear and all members of the society become extinct, there is the feeling that the "eternal stream"—in which all beings merge, in which the great Creative Gods and Goddesses are part—must, by its very nature, continue. As long as this concept retains its hold there can be no end of the world for the Australian Aborigines.

RONALD M. BERNDT.

[7] *Vide* C. H. Berndt, *Women's Changing Ceremonies in Northern Australia*, L'Homme I, Paris, 1950; R. Berndt, *Kunapipi* (in press) and *Djanggawul* (for publication).

## NOTES AND NEWS

Professor S. F. Nadel arrived early in the year to take up his position as Professor of Anthropology in the School of Pacific Studies, the National University, Canberra. We welcome both Dr. Nadel and Dr. Stanner (Reader in Comparative Institutions) and also the consequent strengthening of Anthropology in Australia. For a quarter of a century the Department of Anthropology in the University of Sydney was the outpost in this part of the world. Now there are three Universities with Departments, for a Chair was recently established at Auckland, with Dr. R. Piddington as first Professor.

Mr. R. M. and Mrs. Catherine Berndt have received the 1950 award of the Edgeworth David Medal in recognition of their distinguished contributions in the field of Anthropology. The conditions of the award are that the recipients shall be under 35, and that the work shall have been done mainly in Australia or its territories or have contributed to the advancement of Australian science.

Mrs. Berndt has also been awarded the Percy Smith Medal by the University of Otago, of which she is a graduate, for papers and books on Australian Aboriginal culture.

Mr. H. F. Powell, after thirteen months in the Trobriand Islands, studying culture-change, is returning to England.

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## REVIEWS

*The Linguistic Position of South Western New Guinea.* By J. H. M. C. Boelaars, M.S.C. E. J. Brill, Leiden, 1950. Pp. 217 and maps and diagrams.

This book is a thesis accepted by the University of Utrecht for a doctor's degree. The material it contains, which is almost wholly new, has not resulted from field work carried out by the author, but was collected principally by Fr. Drabbe over a period of about ten years. In addition some material has been drawn from the published Marind grammar and dictionary of Fr. Geurtjens. Apart from Fr. Drabbe's Kamoro Folktales published in *Oceania* (Vol. XVIII and XIX), this is the first publication of any of the extremely valuable material he collected, and it adds greatly to the sum of knowledge of the southern part of Dutch New Guinea, from the Australian border westwards to the Mimika River, inland to Wissel Lakes and from Merauke inland to Tanamerah.

Fr. Boelaars has divided the book into two parts. The first consists of a thumb-nail sketch of the grammar of each individual language studied by Frs. Geurtjens and Drabbe. The second consists of an analysis of the material, in search of common elements, and facts that will allow of a classification and placing of the languages.

The spelling is the obvious weak point, and this is not the author's fault, for he writes (p. xiv) " the weak point in the material of Father Drabbe is the lack of a phonetic transcription. Father Drabbe made his grammars on behalf of his fellow missionaries, who were able to hear the pronunciation of a word from the native speakers themselves." The fault then lies with the collector of the material and

not with its editor that the transcription is only approximate. Stress is marked by printing the vowel of the syllable in heavy type. Nothing is said of intonation, and judging by the obvious connection of the Kati language with that of Telefomin, it is to be expected that Kati, like Telefomin, is tonal in character.

The quality and quantity of the information given about each of the fifteen languages outlined is very uneven. Ekari and Moni (Wissel Lakes district) are both very meagre. A Mss. grammar of Ekari by Captain de Bruijn is a valuable addition, but this has as yet been only privately circulated. Study carried out by Miss Marion Doble of the Christian and Missionary Alliance at the Wissel Lakes shows that this language also is tonal.

The greatest handicap to the easy study of the material is the method of setting it out. Each language is treated under a series of marked headings—Name and Territory, Nouns, Pronouns, Verbs, etc. Instead of presenting tables of declension and conjugation, the compiler gives first a series of examples, followed by an analysis, as though he were teaching a language by the heuristic method, and the list of prefixes, infixes and suffixes is thrown in almost as an afterthought, without being made to stand out in print in any way. It is only the pronouns that he tabulates, and even then he gives the ( dual and) plural of each person before the singular of the next person. The result is frequently so complex that the reader has to write out the paradigms before he can get a clear view of the structure. Fr. Boelaars' terminology is often unusual and difficult : he speaks of " relations " instead of objects, because the languages do not distinguish between direct and indirect objects—although it is possible to use the word " object " in English in both senses. Thus of Jélmèk pronouns he says : " Set IV consists of forms that occurring adjectivally precede the noun that is relation in a sentence, and occurring substantivally acts as object," and then gives two examples to explain his meaning. In Makleu alone does he give tables of conjugation, with the result that the setting out there is much clearer.

It is admittedly difficult to edit another's Mss. (even when, as in this case, collector and editor could consult together) and the reviewer, having been privileged to examine Fr. Drabbe's original typescripts, feels that these were often clearer than the present book. The information itself is highly acceptable, and Fr. Drabbe has filled in a very serious blank in the linguistics of the Pacific Basin. More of his work is gradually appearing in the *Bijdragen* and *Anthropos*, and will serve to complete and check the present outline.

In Part II, the theoretical section, Fr. Boelaars presents a collation of the whole material under the heads of the various Parts of Speech, the lion's share of the space naturally falling to the verbs. His last three chapters are concerned with marshalling conclusions about the nature and position of the languages. The analysis of the points of agreement and disagreement is very thoroughly carried out, and makes this the better part of the book in some regards. The writer gives an example of the almost complete divergence of vocabulary between the languages. This is a feature that is becoming increasingly recognized amongst students of the Pacific languages—a fair degree of structural correspondence (although the actual morphemes involved may be completely heterogeneous) along with apparent chaos on the lexical level. Many of the common morphological features of these languages reappear in other parts of New Guinea, but again so sporadically that it does not seem possible to link the various languages genetically. Similar features have been pointed out by the reviewer in his studies of the Central Highlands of Australian New Guinea. The overall syntactic pattern throughout the island is much more homogeneous than the phonetic, morphological and lexical contents of the languages.

The final conclusions reached are, in Fr. Boelaars' words, " rather unsatisfactory, because it proves to be impossible to come to a definite pattern of the languages of South Western New Guinea." With that, at least in the present state of knowledge, there can be no quarrel.

It remains to be said that in spite of its weaknesses in method in Part I, this is an important book, which all students of the subject must have. One looks forward with interest to the publication of Fr. Drabbe's vocabularies, with which a beginning has been made in the other journals mentioned. The book is well printed, and the maps and diagrams are very clear. The photos of the two priests whose material is used are excellent, and their inclusion was a happy thought. There are occasional slips in English, e.g. " If I should have come " (p. 13), " no tense indices like *k* is in the normal predicate " (p. 15), but they are few, and Fr. Boelaars is to be congratulated on his courage and success in working in a language that is not his own.

A. CAPELL.

*Ooldea*. By Violet E. Turner. Melbourne, 1950. Price 8/6.

This little book is of value to the student of culture contact in Australia and to all interested in the impact of mission life on the Aborigines, setting out as it does something of the uninformed endeavours of the United Aborigines' Mission authorities to evangelize and Christianize the Aborigines. The policy pursued by this Mission can, unhappily, bring only disaster to the natives concerned. For this reason the book is recommended to the discerning student. Its discussion of native life is superficial ; and even in matters of Mission history, as in describing the establishment of the Ooldea settlement and station itself, it omits significant facts. There has been no attempt at documentation, and no authorities are quoted. Ooldea to-day has a literature in its own right, and reference should have been made to the names of A. G. Bolam, Daisy Bates, A. P. Elkin, N. B. Tindale, J. B. Cleland, T. Harvey Johnston and the reviewers.

A discussion of the general policy of the United Aborigines' Mission, with special reference to Ooldea, is contained in the reviewers' book *From Black to White in South Australia*, to be published this year by F. W. Cheshire Pty. Ltd., Melbourne, in conjunction with the University of Chicago Press, U.S.A.

RONALD M. BERNDT.
CATHERINE H. BERNDT.

*Culture in Crisis : A Study of the Hopi Indians*. By Laura Thompson, with Foreword by John Collier. New York, 1950. Pp. ix-xxiv, 1-221.

This book amply fulfils the promise of its Introduction, and of its striking and unusual binding and dust-jacket. The author has correlated and summarized the research findings of scientists from various disciplines who worked on the Hopi project in conjunction with teachers, government officials and others directly interested. The scale of this research (" . . . over fifty scientists . . . ", p. 3) must excite the envy of workers in Australia, where deficiencies in funds and trained personnel have long been a handicap to serious anthropological research.

The " significant problem " of the study, oriented from a standpoint both " practical " and " scientific," was (p. 15) " conceived as a structural analysis of the Hopi crisis in the context of the total pattern of human events in space and time relevant to it. For purposes of analysis the factors relevant to the crisis problem

are conceived in five dimensions: ecologic, somatic, sociologic, psychologic and symbolic." The data presented in the book are arranged according to this scheme. The author usefully suggests that (p. 15): "Basically administrative problematic situations may be reduced to scientific problems in culture structure analysis requiring 'structural insight' for their effective solution."

Research techniques employed in the project, which "succeeded in developing in integrative, psychiatric type of methodology for investigating the total personality structure in total context" (p. 14), are adequately summarized; and existing literature and other material relating to the Hopi is cited in relevant context.

The problem of the Hopi in crisis is (p. 184) "in its postulates and orientations universal." One may find parallels in the crisis experience of the Australian Aborigines, and a number of practical suggestions which could with advantage be applied in modified form to the problems which they too are experiencing as a result of alien contact and pressure. Among the Hopi, however (p. 62), "the crisis is one of group health and welfare rather than of group survival," whereas the Australian Aborigines are in increasing danger of losing their ethnic entity.

Of special interest in view of the uni-lingual approach of (for instance) the new Commonwealth Education scheme for the Northern Territory of Australia is the present U.S. administrative emphasis on the importance of retaining the local language (p. 115): "it is generally recognized that bilingual teachers in Indian schools, especially those versed in native beliefs, have an advantage over those who speak only English"—from their own as well as from the children's point of view. Wnere school materials are deficient or lacking, children in Australian Aboriginal schools could well be encouraged to prepare their own illustrations and simple texts (cf. pp. 115-116), although this would probably entail a higher standard of teaching than is now available.

Perhaps the weakest point of a broadly conceived cross-cultural policy, even where this has become statute law, is the continuing influence of reactionary "behaviour patterns, ideologies and rationalizations" held by many of those responsible for its implementation, or subjectively affected by it. This has relevance also in Australia; and the vulnerability, as regards not only execution but also fundamental orientation, even of a scheme which (p. 151) "has had a markedly beneficial effect on the welfare of the tribe," is seen in the "considerable misunderstanding of, and resistance to, the new policy and program in Hopiland, in Washington, and in the general American population."

The chapter on "Time, Space, and Language" by Benjamin Lee Whorf (pp. 152-172) is both thought-provoking and rewarding. In showing how culture and culturally induced attitudes are not only transmitted but also restricted by linguistic forms, the conclusion is reached (p. 172) that "underlying the overt behavioural manifestations of stress among the Hopi is an unresolved conflict between genetically unrelated and structurally incompatible world views which differ even in such key premises as the concepts of time, matter, and space . . ." That is, "in broad perspective, the inner core of the crisis is ideological."

As a neat and compact summary of the problems faced by an ethnic group in relation to a powerful, industrially oriented society, which includes among its agents fanatically intolerant missionary sects, this volume should be required reading for all administrative, teaching, mission and other officials who have direct or indirect contact with indigenous people.

The presentation of the material, and the format of the book, are at once effective and pleasing, with relevant line drawings and plates which enhance the reader's appreciation of the text. Minor errors such as faulty line setting on pp. 48 and 166 are insignificant. The study itself is decidedly stimulating, if only as an example of what can be accomplished by a holistic and multi-dimensional approach to what is, indeed, a many-faceted problem.

CATHERINE H. BERNDT.